



WWF

EDUCATION

Methodologies for the future

— a guide to develop education for sustainable development



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WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by: conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.



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I'm doing what I can!

One day a huge and terrible fire broke out in the forest and all the animals ran to escape. As they came to the edge of a stream they stopped to watch the fire, feeling very discouraged and powerless. They watched their homes being destroyed and complained. They all thought there was nothing they could do about the fire, except for one little hummingbird.

This particular hummingbird decided to do something. It swooped into the stream, picked up a few drops of water and flew into the forest and put them on the fire. Then it went back to the stream and did this again, and kept going back, again and again and again.

All the other animals watched in disbelief and some tried to discourage the hummingbird with comments such as, "Don't bother, it's too much, the fire is so big, you can't do anything, you are too little, your wings will burn, your beak is too tiny, it's only a drop, you can't put out this fire."

Finally, one animal asked, "What do you think you are doing?"
The hummingbird, without wasting any time looked back and said,

"I'm doing what I can!"



Introduction

The Lake Victoria region is full of natural resources, vibrant cultures and great possibilities for growing economies. Yet it faces vast challenges from depleting environments, poverty and overpopulation. If these challenges are to be turned into opportunities, schools and communities have important roles to play. With the reorientation of formal, non-formal and informal education towards Education for Sustainable Development (ESD) students and participants can be empowered with knowledge and action competence to take a stand, make informed decisions and act towards a more desirable future for their own lives and their societies.

This material is intended as a source of inspiration and support for teachers and trainers to develop forms, tools and methodologies that will develop action competence for sustainability in students. It provides in-depth examples of sustainable development, illustrates what needs to be taught, and shows how schools and communities can develop together. Last but not least, it suggests a variety of methodologies that can be used both inside and outside the classroom and when working together with the communities.

Good luck with your important work!

Dare to be different



Sustainable development is one of the biggest challenges mankind has ever faced. If we are to achieve sustainable development everyone must participate. This will require lots of learning. We need knowledge, values and skills to participate and contribute to reach a more sustainable future. Education has an important role to play in building this capacity. Kofi Annan, a former general secretary of UN, once said that our biggest challenge is to “put sustainability into the very heart of education“. When world leaders gathered in Rio in 1992 and agreed on Agenda 21, education was given a dedicated chapter due to its importance. In the meeting in Johannesburg 2002, education was reaffirmed as a foundation of sustainable development “making the abstract real, and developing the capacities of individuals and societies to work for a sustainable future is, essentially, an educational enterprise...“. It was also stated that “...education is the primary agent of transformation towards sustainable development, increasing people’s capacities to transform their visions for society into reality...“. To promote this it was also agreed to dedicate a special decade for ESD, the United Nations Decade of Education for Sustainable Development DESD, between 2005 and 2014, for which UNESCO is the lead agency.

This calls for a reorientation of policies, curriculums, teacher training all the way to the learning and practice in local schools, communities and workplaces.

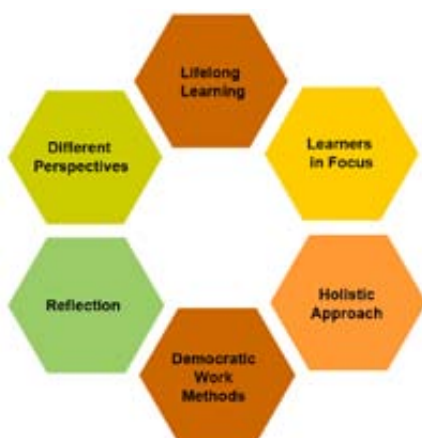
But what is ESD? This needs to be critically analysed and defined by each and every one of us. ESD has many aspects and WWF has tried to merge these into six cornerstones which are presented in this chapter. nesco’s regional office in Bangkok has defined ESD in another way:

- Envisioning – being able to imagine a better future. The premise is that if we know where we want to go, we will be better able to work out how to get there.
- Critical thinking and reflection – learning to question our current belief systems and to recognize the assumptions underlying our knowledge, perspective and opinions. Critical thinking skills help people learn to examine the economic, environmental, social or cultural structures in the context of sustainable development.
- Systemic thinking – acknowledging complexities and looking for links and synergies when trying to find solutions to problems.
- Building partnerships – promoting dialogue and negotiation, learning to work together.
- Participation in decision-making – empowering people.

ESD involves us in an important and exciting process in which we are all compelled to learn and share our ideas on the best way to help people around the world develop their skills and move forward.

Six cornerstones

What is characteristic for Education for Sustainable Development (ESD)? In the following we will describe ESD using three questions and six cornerstones. This is an overview of one way of describing ESD. Read more about this in “Learning Sustainable Ways”, a booklet in which WWF elaborates its position on ESD.



Why ESD?

When you develop and extend knowledge you get a palette of personal skills, which are useful both in individual and collective situations and enable you make more conscious and considered decisions in an increasingly complex and changing world. A social process we call sustainable development and which does not have a well-defined destination set up in advance.

How is ESD done?

Holistic approach

Teaches skills to connect issues of ecological carrying capacity to issues of social justice and economical sustainability.

Calls for a cross-curricular approach.

Key question: How can you link environmental, social and economic aspects when you are educating?

Lifelong learning

- Paves the way for the ability to rethink and think anew, and to be innovative.
- Working-process oriented and values both process and results.
- Develops a progression in ESD.

Key question: In what way can you as a facilitator support your students/participants to rethink and to be innovative?

Learners in focus

Puts learners in focus and uses their own questions and expertise as starting points.

Based on an approach in which the learner builds knowledge in interaction with others.

Key question: Of what importance is a learners preknowledge, questions and knowledge in the learning process?

Democratic work methods

Lets learners influence their schools and the surrounding community – making them the active creators of their own education and their efforts in society.

Key question: Do the students/participants have any possibility to influence their education, the learning process and the surrounding society?

Different perspectives

- Supports critical analysis from different perspectives, e.g., ethical, historic/present/future, and takes a stand in when interests come into conflict.
- Discussions about issues of values and interests are central.

Key question: How do you manage your students to look at the world from different perspectives?

Reflection

- Develops skills for a critical analysis of where we are heading, and for developing visions and strategies for a more sustainable society.
- Encourages a continuous inner reflection, and a more concrete form of listening, expressing, writing and artistic creation.



Key question: In what way do you encourage the learners to think in a critical way?

Where is ESD done?

Oriented towards the local environment

Uses the school and the surrounding community and nature as learning arenas, and develops participation and cooperation.

Action competence

With the six cornerstones of ESD as a foundation for education, participants will develop important skills that will enable them to take a stand and act for a better future. However, it is not enough merely to teach people how to discuss sustainability – you must also get them to act. For this reason it is a good idea to take a closer look at the key challenge of ESD – building action competence! What makes people go from words to action? There is no simple recipe for this, it is a very complex process with many interacting factors which may differ greatly in different contexts and situations. However, research has found the following aspects to be important:

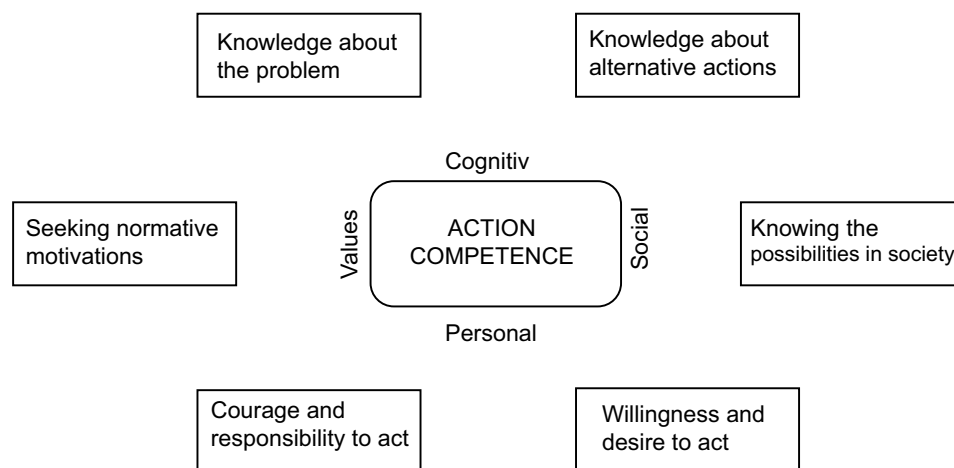
- Will, courage and the desire to get involved and act
- Knowledge of problems, their causes and possible solutions
- Knowledge of the sphere of influence
- Reflective attitude towards different options

Drivers of environmental actions

It is important for the educator to enable students and participants to develop action competence by providing situations in which they are encouraged to experience action themselves. For example collaborative projects with the local community are excellent learning opportunities in the school. Role-models are also important for developing action competence. These can be teachers, parents, community members or whole schools that demonstrate good practice in acting for sustainability.

Why do some people act while others don't when they run up against environmental problems? The Swedish researcher Ellen Almers has examined this question and lists four reasons and driving forces behind environmental action:

- Desire for change and willingness to act
- Desire for meaningfulness
- Desire to feel competent
- Longing for community with others



The desire for change is experienced, for example, when you share the burdens and sufferings of others, or when you see an entire rainforest being devastated. Breiting et al. (1999)

The desire for meaningfulness occurs when your own values harmonize with your own actions.

The desire to feel competent is about carrying out a task for which you feel qualified. This imparts energy, strength and joy.

The longing for community is about sharing experiences, feelings of participation and belonging.

ESD methods

There are no special “ESD methods” that have been specifically designed or created for teaching and learning sustainable development. But some methods are much better suited to ESD than others. Typical for many ESD methods is a focus on the learning process. The method chosen must suit the specific teaching or learning situation. The learning environment must also be tailored by each professional educator to suit each particular case.

A checklist of ESD-methods and activities

Here is a checklist of things that are important to take into account when choosing methods and activities in both the short and long term:

- **Pre-knowledge.** What do the participants already know and what attitudes do they have?
- **Aims.** What are the aims of the teaching or project in question?
- **Purpose.** Start with the purpose. From this, construct a what and a how.
- **Skills & knowledge.** What skills and knowledge do you intend to impart and improve, and what attitudes do you intend to develop?
- **Methods.** Which methods and activities will best support the aims?
- **Learning styles.** Try to have all the four learning styles in your mind. Look at page 11.
- **Emotions.** Don’t forget emotions!
- **Evaluation.** How will you assess and evaluate what has been learned?
- **Participation.** How will the participants be involved in the planning and progress of activities?
- **Visibility.** How will you make your work visible to others?



FOUR THOUGHTS ABOUT LEARNING

A journey full of questions

Imagine you're on a journey towards an unknown future. The final destination is very, very far away. Nor do you know what will happen to you and your travelling companions along the way. What do we need to equip ourselves with in order to face an uncertain future? What skills and competence do you need to develop? In this book we present a large number of exercises that can be used to develop skills for a sustainable future.

Why do some things stay in your mind?

Your baby's birth, a colourful flower, an adventure in a rainforest, a breathless sunset... Some moments in life are never forgotten. "It was a memory for life" you might say. Why do some things stay in your mind?

Think of something you'll always remember. Tell anyone. Think about what made it so unforgettable.

Think also of something you know how to do, in practice or in theory, something you are good at. Why are you good at that particular thing?

Two things affect on learning

I remember when I broke my leg during a football match, it hurt so badly! I also remember when I met some friends and we laughed until we cried. A brain scientist has pointed out that there are two things that have a marked effect on learning. These are negative, unpleasant and positive, happy experiences.

The French philosopher Descartes emphasized the importance of the brain, "I think, therefore I am". But is it not also true that the brain and body are irrevocably bound together? Chemical substances in the blood and the electrical nerve impulses connect the body and the brain. We need both to become full, social individuals. Emotions show us the way!

We have pointed out that ESD is built on six cornerstones (page 6). We are all individuals and learn and teach in different ways. Two cornerstones dealt with reflection and learners in focus. In the following you'll meet four philosophies of learning. These are described openly and impartially and it you should read and reflect upon them carefully.

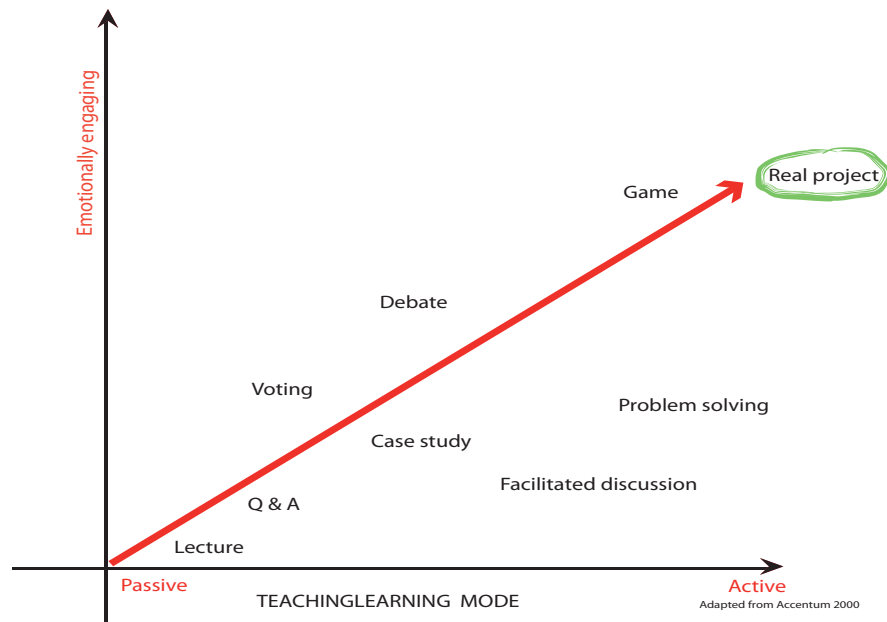
1. Active and engaging learning

Think about a learning situation that engaged you and ask you two questions related to that. What was it that you found enjoyable? When is learning active and engaging?

To reflect on your own teaching and your way of learning things are important ingredients in the art of learning. When you listen to a lecture you are mostly passive and



unengaged. However, if you participate in real projects, play games, debate and solve problems you are both active and committed. Do you agree? Look at the diagram below and judge whether it matches your own experiences. We can conclude that the more active we are the better we learn!



Compare your role as an instructor today with the description in the text.

2. Four educational philosophies

Humans are learning beings. How a school is designed and constructed today is no coincidence, it belongs to a historical context. During the period from the past to the present some educational philosophies have developed. These philosophies include some fundamental way of thinking in education. The old ways of thinking about education carries important experiences that can be challenged. The new can be reflected in the old.

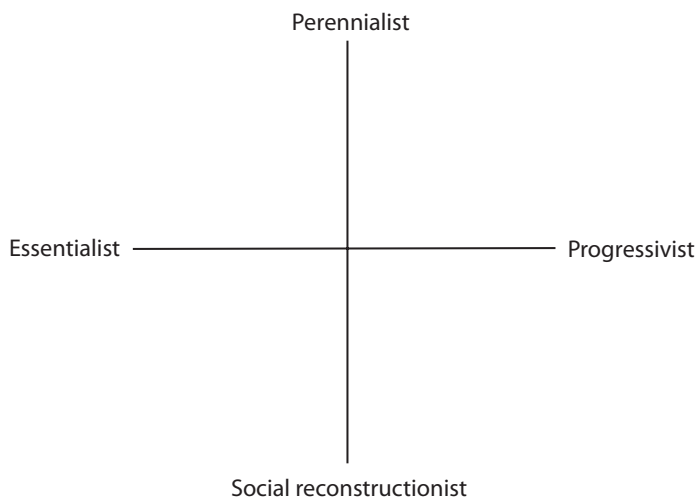
Do you think that subjects have an inner core that defines them, or do you favour a critical approach instead? Do you teach principles or do you think that society should be changed? If you have these thoughts, this chapter may attract you.

It's possible to identify four different philosophies developed during the 1900's that have provided us with interesting explanations about the nature of education. We are all different. Where in the diagram on page 6 do you find yourself?

In the following, we present four educational philosophies. Which of these four educational philosophies would rapidly lead to the solution of immediate needs?

Essentialism

There is an inner core to a subject, a topic-specific knowledge. Participants should be given facts and taught relevant skills in different school subjects. The instructors have knowledge; the participants can be seen as empty vessels to be filled – this approach can be called Banking Education.



Where are you in this figure? Put a cross in a box that you are comfortable with when you are thinking of your learning philosophy.

There is no right or wrong. Perceive the exercise as a starting point for reflection and conversation.

Progressivism

Here the goal is to place the individual, the student, at the centre – about developing the learners themselves. This approach stresses the practical side of teaching (“learning by doing”), through real-world experience and activities that centre on the students’ actual situation. The instructor organizes and guides the student in learning situations.

Social reconstruction

Society is changing, that’s good! Provide the participants with tools so that they both can and want to change society. The student has social change and the future in focus. The instructors don’t need to be neutral. The learners develop critical thinking.

Perennialism

Some things are eternal and schools must take this into account. Schools must pass on these eternal principles; some knowledge of which is part of a broad education. Since factual details change constantly, these are less important. Therefore, one should teach principles. What it means to be human, major life issues, ethical issues. A perennialist focuses primarily on personal development. It is an instructor-centred method.

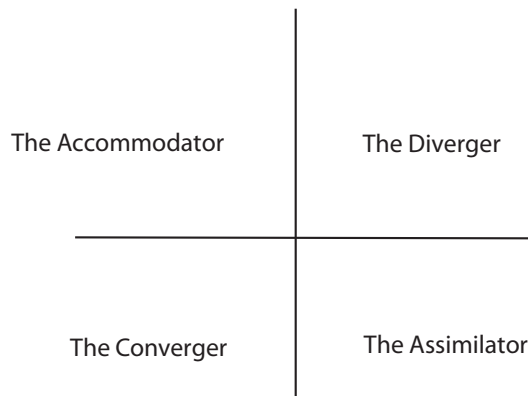
3. Four learning styles

When you have bought a new radio, do you read the manual or do you press the various buttons to see what happens? We all do things differently and it is possible to identify four distinct ways of learning or so-called learning styles.

1. **The Diverger** relies on concrete experience and reflective observations and stands for curiosity, imagination and emotion. The diverger combines practical experience with reflection and observation. Different people may interpret things differently and come to different conclusions.
2. **The Accommodator** relies on concrete experience and active experimentation. The accommodator solves problems intuitively – by trial and error.
3. **The Assimilator** wants to have abstract conceptualization and reflective observation and is not interested in concrete experiences and people. Knowledge is incorporated into the inner world without changing the internal structure of that world.

4. **The Converger** thinks first and acts afterward and is fond of logical thinking. He/she wants first to establish a theoretical background and then put it to the test in a practical situation. Questions that are asked by the converger have answers that are either right or wrong, e.g., the type of questions often posed in mathematics and in certain aspects of language, in the sense that there is often only one correct answer and not a variety of different interpretations.

Four Learning Styles



Which of these learning styles should you adopt? It's probably a good idea to use parts from all four adapted to the particular requirements of each teaching situation. The emotional aspect is very important. Human beings are essentially creatures of emotion who long to experience a wide variety of things.

The reflection phase is also important in order to bring order to things – to draw a map. When we interpret the world we do so through different filters, goggles. It is inspiring to think together with other people. In dialogue with others we benefit from fresh perspectives which give us a more nuanced view of reality. Your mind is liberated.

Where are you in this chart?

How will you act if you are going to teach a group of 20 participants, 5 are convergers and 15 are divergers?

4. Action learning

Background

ESD means travelling on a winding path towards an unknown future. We need constantly to reflect, reconsider and rethink. A pedagogical approach that is useful in ESD is called Action Learning.

Despite increasingly advanced instruction in school and at university the environment is suffering more and more. Are we learning about the wrong things or are we using inadequate methods? Personal learning should not just mean acquiring old, established knowledge. Your own personal experiences should be used as a basis for problem solving and the creation of new knowledge and should be innovative. Action Learning is a process that reinforces this. Your own and others' daily experiences form a platform for learning – an experience-based learning in a learn-to-the-mind-self-culture. When experience leads to action, this action can truly be called learning.

How to teach

Start with a purpose. From this starting point, construct a what and then a how. You should be able to answer the following: What is the purpose of the exercise? How is it related to the overall purpose of the subject?

Three questions are important to ask when teaching:

- What should we teach?
- Why should I teach just that?
- How should the teaching be carried out?

Start with what and why. Then consider how.

How to learn

Action learning is an ongoing learning and reflection process. Goals and the process of achieving them are equally important. Reflection is the main tool, to reflect with others and learn from them and then act. If your goal is to get a person to understand a concept at a level that they can generalize, and thus apply this understanding in new situations, or combine this understanding with other concepts they have learned. experience-based learning is probably the best way to develop this level of mastery.

1. **Concrete experience.** This can for example be role play or a case study.
2. **First we find out about the situation through observation.** We talk in a general way about what we experience. The basic idea is to create a common, shared experience.
3. **Then we evaluate and analyze** what we have observed. Is it good or bad? We organize our personal experiences using words and concepts and we reflect on and interpret our own and others' experiences.
4. **We design a way of thinking** based on the results of the analysis. This result in an "action", we act. From the reflected and observed we try to sort out things and then arrive at general rules or theories. Through reflection we form strategies for action.

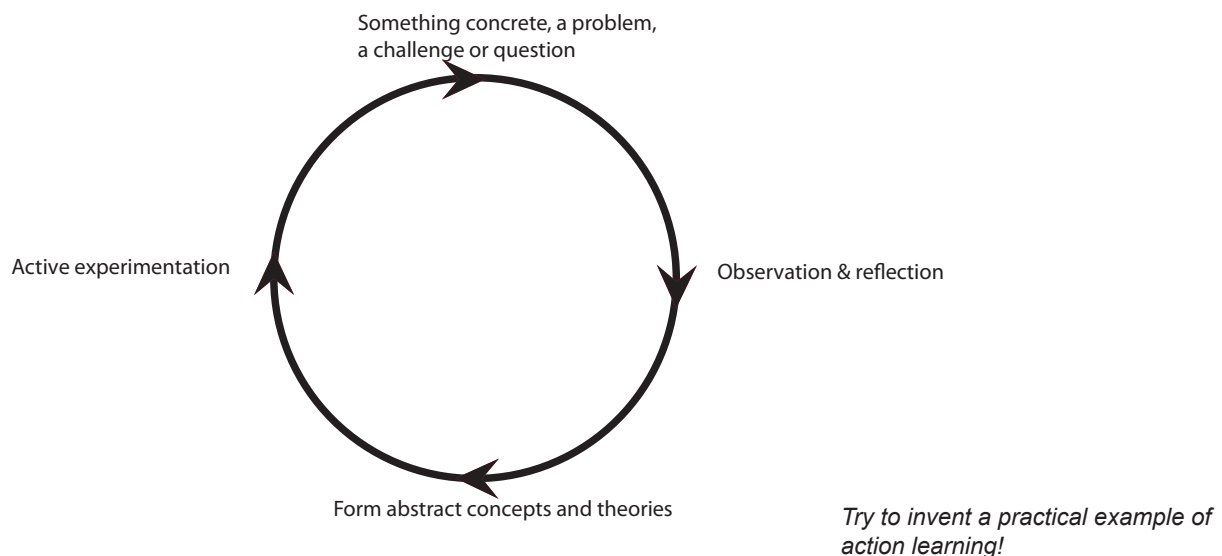
At its simplest, action learning consists of two stages: action and reflection.

action ► reflection in an ongoing series of cycles.

Concepts can easily be seen as empty words. What does poverty, wealth, happiness, sadness, droughts, crop failures, floods, climate change etc. mean for you if you haven't experienced them. The personal experiences are extremely important. Your first hand experience where you use all your senses gives powerful experiences that are stored in your mind. When you are reflecting and analyzing learning is taken place. However, reflection leads to learning, which leads to changed behaviour in the future:

action ► reflection ► action

Learning it is made more effective by expanding the reflection component in this cyclic process. We can therefore expand the reflection component we want to take into account.



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"OBUGUMIKILIZA BULUMYA NAYE BUSASULA"



WHAT IS EDUCATION FOR SUSTAINABLE DEVELOPMENT?

What is sustainable development?

Purpose

To visualize the concept of sustainable development.

Background

The world faces great challenges; climate change, loss of biodiversity, oversized ecological footprints, poverty, etc. These challenges are complex and span a wide variety of ecological, social and economic factors.

The United Nations defines sustainable development as a development that “meets the needs of the present without compromising the ability of future generations to meet their own needs.” Those of us living today have a joint responsibility to create sustainable development within our own countries and to foster development worldwide for future generations. Our global footprint is too large. Sustainable development means living a good life in the context of one planet – living a useful life within existing ecological limits and conserving natural resources.

A sustainable society is a society characterized by democracy. People feel that they are able to participate and influence development in society. Sustainable development is also about the efficient use of natural resources.

To really understand the meaning of sustainable development you must grasp the links that exist between environmental, social and economic factors.

Before you begin

The participants will need some empty jars to collect things in.

What to do

Gather the participants in a circle and inform them about the exercise:

a) A symbol

Tell them to go out into the wild and pick a natural object which they think is sustainable or that they associate with sustainability. It can, for example, be a branch.

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

UN: Our Common Future,
Chapter 2

Gather the participants in a circle. They should show each other what they have found and discuss the sustainability of natural objects. Start a free discussion and try to agree on a definition of what sustainable development can be.

There is an official definition of sustainable development that comes from the United Nations:

Let us immerse ourselves in this definition by confronting small bugs in nature.

b) Bugs in a jar

Take a jar. Go outdoors and look for small bugs. These may, for example, be worms, beetles or similar creatures. Put them in a jar and ask them some questions.

- What kind of food does the creature eat?
- Where does it live?
- How does the creature spend its life?
- What do you think is a good life for the creature?
- How will the future be for the creature?

Ask the same questions of yourself:

- What kind of food do you eat?
- Where do you live?
- How do you spend your life?
- When are you sad/ happy?
- What are your most important needs?
- How do you see the future of humans in the short and long term?
- What do you think about the UN definition above about sustainable development?
- Which way do you wish that your children will go when they meet the coming days?



Sustainable development - what does it mean to a 12 years old?

Purpose

To make an abstract concept simple and easy to understand.

Background

In 1992 there was a conference held in Rio de Janeiro about environment and development. This was the biggest meeting ever held within the UN. At this time the concept of Sustainable Development became well known all over the world. Everybody agreed that sustainable development was a superior goal for development. There was even a plan developed on how to reach a sustainable way of living within the next 100 years. Most people agreed, but when it comes to daily political issues most politicians have conflicting opinions. Sustainable development is a development that ensures the well-being of humans by integrating social development, economic development, and environmental conservation and protection.

What to do

The concept of sustainable development is often seen as complex and nebulous. Ask the participants to explain the concept with the following constraints:

You are a teacher in class six:

A young girl comes to you and says. "Yesterday I heard a radio program. They said it will be nice when I grow up because we will have sustainable development, but I do not understand what that means".

Form small groups and try to explain the concept of sustainable development in such a concrete way that a 12 year old child will understand your explanation.

The participants then present their explanations. Reflect together and discuss the different versions.

Some other examples of how to explain sustainable development:

If an individual person fully embraces and applies the precepts of sustainable development then gradually the entire society will be positively changed.

If you dig terraces in the sloping part of the farm, then the soil will not be washed away. This means your farm will remain fertile and produce more crops to continue feeding your family in the future.

If you cut trees to get firewood you can't cut more trees than there are new trees growing up.

If you use water without wasting it then there will be more water available in the future.

If you catch fish you cannot catch more fish than there are new fish being born.

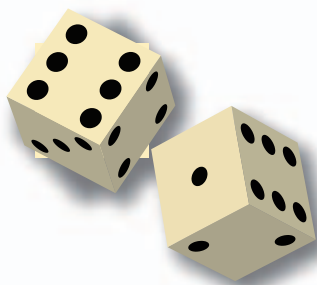
We all want to keep our homes clean and in good order and we are economical with the family resources. Let's treat the planet as we do our homes.

If the children in a family are given an equal amount of presents by their parents they will live in peace. The same must apply when economic resources are distributed between people in different countries if we are going to live in peace.

We should explain why it is better to live in a sustainable way so that children will experience it and learn.

We should explain why it is better to live in a sustainable way so that children will experience it and learn.

If we behave towards others the way we want them to behave towards us, we will have sustainable development.



S.E.E. the links

Purpose

To explore the linkages between Society, Environment, and Economy (= S.E.E.)

Before you begin

Get hold of three sets of dice in three different colours for each group.

What to do

1. Let the participants sit in small groups.
2. Three numbers are chosen by rolling three sets of dice, red, green and blue. The red dice correspond to the category Society, the green dice correspond to the category Environment, and the blue dice correspond to the category Economy. Each category contains six terms, as listed on the activity sheet, one for each number on the dice.
3. One of the partners rolls the dice. The group is given a few minutes to discuss, and then compose a short story which links the three terms that correspond to the numbers shown on the dice. Terms may be used in any order. The group writes down the story.
4. When one story is finished, roll the dice again to create a new story.
5. When all groups have completed at least one story, ask a few groups to share and then discuss the stories.

Example Roll

1. Society = "poverty"
2. Environment = "land use/soil"
3. Economy = "markets"

Example linkage in words

A young farmer inherits a garden plot. The previous owner had not cared especially well for the plot; the soil had become less fertile and had been eroded by rainwater. The young farmer kept most of the harvest from the garden plot to feed his family. The market in town suffered because many farmers did not have surpluses to sell, because their land had also been eroded. Poverty in the area increased.

Comments

You can go further by adding an additional set of dice; personal dice. These dice will show emotions. The dots on the dice can stand for: joy, sadness, happiness, disappointment, satisfaction and excitement.

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Three dice and their meaning

Society

1. Security
2. Housing
3. Medical care
4. Poverty
5. Culture
6. Politics

Environment

1. Water
2. Air
3. Landuse/soil
4. Waste
5. Pollution
6. Habitat

Economy

1. Food/fibre
2. Business/ industry
3. Local economy
4. Global economy
5. Jobs/livelihood
6. Markets



Sustainable development in the local environment

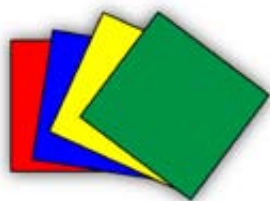
Purpose

To identify different aspects of sustainable development in the local environment and to discuss important skills connected to this.

Before you begin

a) Collect some pictures of your local community. Try to get a good mix of pictures showing landscapes, buildings, culture, history, jobs and people. Postcards and pictures in magazines work well, or you can use the images contained in Resource 2 at the end of this book.

b) Prepare four postcard-sized pieces of paper in different colours (for example red, yellow, green and blue) for each group. Each card/colour corresponds to an aspect of the picture:



- A social aspect (red)
- An economic aspect (blue)
- One about democracy (yellow)
- One about ecological responsibility (green).

What to do

Part 1 - Our complex communities

1. Choose a picture

Put the pictures up on a wall or something similar and ask the participants to choose a picture that interests them. The picture may make them think of a memorable occasion, remind them of a spot near their home or a place they either want to change or preserve exactly as it is. If someone ends up by themselves with a picture he/she can bring it to another group and this group can choose to work with one of the pictures or both. Ask the groups to take the pictures away with them, and to sit together for a while and discuss them.

2. Four pieces of coloured paper

Distribute the four postcard-sized pieces of paper to each group. Explain that each card / colour corresponds to one aspect of the picture:

- A social aspect (red)
- An economic aspect (blue)
- One about democracy (yellow)
- One about ecological responsibility (green).

These four aspects form the framework for both our potential and our limitations.

3. Identify four aspects

Now, the participants look closely at the picture of their choice and identify four dimensions mentioned in the instructions above.

Ask the participants to write down the aspects they have identified, one aspect per piece of paper. If the picture they have chosen shows a playground and they have identified “child care” as the social aspect, writes the “nursery” on the piece of paper whose colour represents the social aspect.

4. A large sheet of paper

Set up a large sheet of paper at the front of the room and write the heading “Our society” at the top. Start with a social aspect, ask a person or group to give their response. Attach it to the large sheet of paper.

Then select another aspect (from any of the four areas), that relates to the first. Place it next to the first factor and draw a line connecting the two. Continue this process until there is no more related factors and no more lines can be plotted.

When the group is unable to find more related aspects, ask someone to begin with a new starting point. Continue this process until all issues have been presented.

5. Explain ideas

Ask the participants to look at this interwoven web of issues and consider how they are affected by, or influence, external aspects – regional or global. Ask them to explain their ideas for the group and write them on a blank area of the large sheet of paper.

Part 2 - Important skills

6. Important skills

Ask the participants to describe the skills they need to deal with the complex relationships that exist between the many aspects identified during the first part of the exercise, which is represented by the conceptual map “Our society”. For example, “be flexible”, “listening”, and so on. Write down the participants’ responses on a large sheet of paper.

7. Developing skills

Knowledge can be summed up in four words facts, understanding, skill and familiarity. But we also need values and attitudes to expand and develop knowledge. Now discuss briefly the skills you identified under number 6. Write down the answers on a flip chart.

Part 3 - Personal reflection

In part 1 you gained an insight into the complex relationship between social, economic, ecological factors and the manner in which democracy and decision-making have a bearing on how we organize our society now and in the future.

Part 2 involved getting an understanding of what is implied by learning for sustainable development and you have identified the skills you think are important for the participants to develop in this area. Use this as a guide for further discussions.

Now, you shall briefly discuss the skills you identified in number 6.
Discuss also from the list below:

Investigative	Ability to be investigating starting a curiosity in existence. Being investigative means constantly trying to learn new things and make the world meaningfully through a creative exploration.
Analytical	Being analytical will be able to take many different aspects when to make a decision or solve a problem. With an analytical perspective, nothing is only black or white, but can always be viewed from a new perspective.
Communicating	By communicating skills one will achieve the ideas and different types of information in several ways. To possess this ability means that you have developed verbal and linguistic skills.
Risk-taking	To develop into a risk-taker means that ones believes in himself /ourself and feel free to explore new and unfamiliar areas, ideas and strategies.
Literacy	Being knowledgeable means that by exploring the world on a variety of ways has gained a large and varied knowledge.
Rigor	People who become principled are sure what they think is right and wrong. They have built up a solid moral platform to start from.
Carefulness	Caring people have developed an empathic ability and feel a personal commitment to act on different societal issues.
Openness	Persons with a capacity for openness shows respect for differences among people and cultures. They weigh in both human rights as it is good for the environment when shall make its decisions.
Rational	People with a balanced view of life considers such that it is important that we feel good both physically and mentally.
Inquiring mind	To have the ability of inquiring mind will be able to reflect upon their own learning and to recognize their own strengths and weaknesses.
Global thinking	People with a global thinking to understand how development can be made both in the neighbourhood of the earth as a whole. They support and defend human rights and are prepared to learn from different cultures.
Active participation	To have an ability to citizenship involves can participate actively in the debate on various social issues.

Write down the answers that come up on a flip chart.

Comments

The exercise has been inspired by Pathways, a development framework for schools sustainability, WWF UK, 2004.

An EE and ESD puzzle

Purpose

To understand different traditions in environmental education.

Before you begin

Copy the resource below and cut out the sentences so that they look like pieces of a jigsaw puzzle.

What to do

Divide up into groups. Hand out one set of the puzzle to each group. Ask the groups to sort the sentences under each headline. When the groups have finished sorting, hand out the resource sheet with the sentences. Let the groups compare their results with the sheet.

Discuss in plenary: Were there any doubts or difficulties? Has their understanding increased?

A summary

On the left you can read a summary of three different environmental education traditions.

Fact based	Normative	Pluralistic
1. Environmental problems are: Scientific knowledge-based in character and are resolved by means of research and gathering information	1. Environmental problems are: Value questions which can be resolved by exerting an influence on people's attitudes and behaviour	1. Environmental problems are: Political issues which should be dealt with democratically
2. The Cause of Environmental Problems is: An unforeseen result of production and resource exploitation in society	2. The Cause of Environmental Problems is: A conflict between society and the laws of nature	2. The Cause of Environmental Problems is: Conflicts between humans' wide range of achievement goals
3. The goal of environmental education is that: Students receive knowledge of environmental problems by learning scientific facts	3. The goal of environmental education is that: Students actively develop environmentally friendly values, primarily based on knowledge of ecology	3. The goal of environmental education is that: Students develop their ability to critically evaluate various alternative perspectives on issues.
4. The most central subjects and areas of knowledge is: Natural sciences, biology, chemistry, physics, and ecology.	4. The most central subjects and areas of knowledge is: Natural science and aspects of social science	4. The most central subjects and areas of knowledge is: Economical, social and ecological perspectives
5. The main Method of Teaching is: Factual information from a knowledgeable teacher to the learning student.	5. The main Method of Teaching is: Integrated teaching where the students have an active role in the learning process.	5. The main Method of Teaching is: Integrated teaching where various aspects and critical discussions is at focus. Students are active.



Planting trees in an ESD way

Background

Trees are important for nature as a whole but also for humans. Lots of insects and birds live in trees and use them for food. Humans use wood for furniture, as fuel for the oven and use trees for shade on sunny days. Much more can be said about the importance of trees for the climate and in the future.

What is the role of trees in a sustainable society? How can learning about trees follow the principles of ESD? The following exercise is one way of ensuring that teaching methods really do adhere to the precepts of ESD. See this exercise as a model which can be applied to many other areas.

- Read the section on page 6 of the six cornerstones:
- Different perspectives
- Democratic work methods
- Holistic approach
- Lifelong learning
- Learners in focus
- Reflection

Purpose

To determine whether an activity is characterized by ESD.



What to do

A school has decided to implement a greening initiative and plant an area the size of a football field with trees. The area is now covered with bare soil and a few shrubs. As a starting point for the project to be developed for ESD, the leader adopts teaching methods based on the six cornerstones. Or, the participants can develop their own questions. Treat the following as a suggestion:

Different perspectives

- Try to describe the area that will be planted – what did it look like 100 years ago?
- How do you think it will be 100 years from now?
- Who owns the land today? Who owned it 100 years ago? Who will own it in the future?
- Planting trees is good for food, and as protection against wind and sun. Can you think of a different or better way to use the land?
- Does it make sense to plant trees that may take 20 years to grow really big? Is there no quicker way to cultivate the land?

Democratic work methods

- Who should decide what to do with the land if we are to develop democracy?
- What are the advantages and disadvantages of planting trees?
- Should we have a debate where those who are for and those against discuss the issue?
- Should we have a role-play in which we adopt different roles connected with afforestation, for example, landowners, forest workers, banks, municipalities, schools, etc?
- What strategy should we adopt when we choose afforestation? Which trees should be planted? What is the state of our economy today and how will it be in about 10 years?
- Who should manage the forest?
- How can we collaborate in the local community?

Holistic approach

- Think about ecological issues related to the tree species suitable for planting, the insects/pests that may affect them, how we are to protect them from animals, how much water will be needed ... What will happen to the environment in a local and global perspective if we do not plant new trees?
- Is it possible to save the world with the help of trees?
- Discuss social issues about who is to use the forest, and who should reap the benefits. Can planting forests reduce poverty in a society? Can both men and women work in the forest?
- How will the economy develop after afforestation? What will the plants cost? What expenses will we incur today, tomorrow?
- What revenues can we get from the forest?
- Are there any correlations between ecological, social and economic issues?

Lifelong learning

- How can wood be used for young people? What can the young learn from the forest? How can it be used by older people? What knowledge may older people have that could be valuable for a younger generation?
- How can education be structured to guarantee that it will evolve ? How can learning about the forest follow a staircase of knowledge? What personal experiences do we have? Are they useful for others to know about?

Learners in focus

- What knowledge do we have today about trees and forest management? What do we want to learn?
- How can learners share their knowledge with others?

Reflection

- Are there alternatives to forest plantation? Can we do otherwise? Do we have enough skills?
- Let the participants reflect by themselves and/or in a group.
- Develop a vision for the forest and its importance in society and for the environment in the future.
- What strategies can we develop so that we move towards a sustainable society?





THE ROLE OF THE INSTRUCTOR

Sustainable development is a complex challenge where many opinions meet and diverge. It is a good thing to use methods that promote participation and cooperation among those taking part. The role of the instructor is to supervise learning and to help structure and organise the work. The leader should be passive-active, i.e., pay close attention to how the process of learning advances and step in and provide support only when needed.

Individuals become a group

You meet a nice and interesting person A at a meeting. A few days later you review how things are going along with others in the group. Individuals have coalesced into a team. You now think and feel differently. You might have been stimulated by the group or lost self-confidence. Person A turns out to be a completely different person than you first thought and so on.

Something strange goes on when we get together in a group. Sometimes members of the team can encourage each other to achieve great things, sometimes the opposite can occur. It is very important to influence the mood of the group so that it moves in a positive direction. It is the leader's responsibility to create a group dynamic that delivers more energy than it consumes.

Football team

Look at what can happen in a football team. At beginning the team is just a bunch of individualists who only think about their own needs, but as things progress they start to cooperate.

Examine the following about the football team as a metaphor for a class or group. What is the role of the coach and what are the roles of the players? This discussion could be held in the group that you supervise.

The leader in a football team or in every other groups has different roles and so is it for the players and participants too. Below we have listed various roles that you may have. Perhaps there are even more roles that you can suggest and add?

Responsibilities

Leader's Role

- Best on the field
- Police, judge
- Materials manager
- Team official and coache
- ?

Participant roles

- Spectator
- Ball boy
- Reserve
- Player
- ?



Comments

If each individual player does not take the trouble to learn how to play football properly, the team will lose. The leader can only support, coach, challenge and stimulate the team.

Three questions

Spend some time discussing following questions:

- How can our team get better?
- What should the individual player do?
- What should the coach do?

How can our team get better?

Fear and poor management don't make people perform any better. It is security, a supportive attitude, encouragement, clear objectives, individual responsibility and dynamic teamwork that play important roles in this regard.

What should the individual player do?

Be well prepared for the match and then do his/her very best according to his/her own ability.

What should the coach do?

The team manager should pay attention to all the players and encourage them. He/she must also provide security, facilitate teamwork and positive attitudes and instil courage when necessary.

Knowledge to act

How would you respond to the question "What is knowledge"? Your answers are likely to be many and varied and include the following, something you get by going to school, reading, writing, mathematics, knowing the capital of Kenya, how to hammer a nail into a piece of wood, the ability to find your way through a forest, etc. To put it another way – we summarize knowledge as facts, skills, understanding and familiarity.

A holistic view of knowledge is one in which knowledge is regarded as a process rather than a product, as quality rather than quantity, as something that is value-dependent instead of neutral, where theory and practice go hand in hand, something that has consequences for the learning process, where the superficial becomes concentrated, the memorising of texts by rote is replaced by understanding and where motivation comes from within. Here the emphasis is on previous knowledge and experience, active study in cooperation with others, as well as knowledge of action through reflection. Such a view means that the role of the teacher changes from someone who knows best and imparts this knowledge to students, to a guide who offers different and variable ways of working and encourages the learners to find things out for themselves and to develop a questioning attitude.

Knowledge is all about dealing with problems in a changing situation and how to get the best out of life and progress. Despite living in a so-called enlightened and educated society we are witnessing the results of an increased environmental pressure on Earth. New ways of thinking must be therefore reflected in educational policy documents.

A development-oriented education

Look at the chart. There you can find two different types of education: Traditional education and development-oriented education. How does such a view of knowledge affect teaching and the learning situation and the role of the teacher?

Behaving as a leader

It is important that you clarify for yourself how you should behave as leader. Either you take part in the exercises and take a stand just like the participants or you remain totally neutral.

Young children

When working with younger children it is sometimes wiser not to take part, since children are easily influenced by what the leader thinks. In this case it is especially important to be neutral when discussing the children's opinions in order to underline that there is no absolute right or wrong answer. Small children can misinterpret an almost imperceptible nod from the leader as a confirmation of somebody's answer.

	Traditional education	Development-oriented education
View of knowledge	Knowledge is a product. Objective and quantitative aspects are important.	Knowledge is a process in which the quality and value of knowledge is emphasised. Theory and practice are interlinked.
Learning teaching process	Education is characterised by superficiality, texts having to be memorised and a motivation that is created from sources other than one's own experience.	An in-depth education with an emphasis on understanding and reflection. Motivation usually comes from within. Previous knowledge and experience are valuable and participants are involved in active cooperation. A focus on knowledge in action.
Role of the teacher	The instructor has responsibility for the teaching content and conduct.	The instructor is more like a supervisor or mentor offering varied ways of working. Encourages participants to take responsibility for their own learning.

Values exercises

In the context of ESD values exercises are very useful. But they presuppose that the leader can create a climate of trust and openness. Perhaps you can start the activity with some exercises that force listening and train a respectful attitude. If the group feel safe the values exercises will work very well. Read more about this in the chapter "Competence in democracy".





COMPETENCE IN DEMOCRACY

Values exercises from a general point of view

Values exercises are used to explore people's attitudes and values. Every day we all encounter different situations that force us to reflect and make decisions. Everything we do is based on conscious or unconscious convictions. These may be about clothes, friends, recreational activities, work-related issues, politics, etc.

Values exercises - a way of developing democracy

- a climate full of openness and respect
- put the questions in a context
- it takes a long time

Many factors form our attitudes and values

In today's society we are compelled to form our own opinions much more actively than before. In the past, church, school and family dictated and shared many of the same attitudes and values. Today there are many other factors that influence us, e.g., the media, music, globalisation etc. Many of our attitudes to our lives and futures reflect fundamental values, which are often based on experiences from childhood and adolescence. We are not always aware of the attitudes and values we have, much less of how they control our actions, or where they come from. When it comes to sustainability we often haven't yet formed any values at all as we lack the in-depth dialogue which might help us to do this.

Open attitudes and respect

Working in areas that engender lots of attitudes and values calls for a climate of trust in the group – and a good relationship between it and the leader. The value exercises are not going to function if the group is not open-minded and each individual in the group is not respected. If the group feels safe, the values exercises will become good working tools for the individual as well as the group and increase the individual's awareness of their own and others values. If you feel that the group does not have the openness you might wish it might be a good idea to begin with exercises that teach listening skills and instil mutual respect.

Put it in a context

Another important requirement is that the value exercises are continually put into a context. If this is not done they will merely seem to be odd features of everyday life – things you don't really need to take seriously. Your goal should be to create values exercises that are relevant in your own particular teaching scenario.

It takes a long time

The objective of working with values methodology is to enable each individual to achieve an active, ethical norm. It may take a long time to develop attitudes and values and it is only by an individual person's shift of opinions or actions that you are able to see when changes take place. The first step is often to become aware of your own opinions and actions and how they are formed. Here values exercises may be of help by making it clear to you how you think and feel about certain questions.

ESD is to make sure that the learners have a voice. ESD is everything! Changing the whole human being as a whole.

*Bernard Bakobi,
Tanzania*



The right to express attitudes and values

There is a pedagogical value in not going any further than attempts to increase self-awareness. An overt attempt to influence or change values will easily awaken defence mechanisms and may cause blockages. A fundamental rule for those working with value methodology is therefore to regard answers as being neither right nor wrong. Everybody must have a right to express attitudes or values without being afraid that they will be looked upon as being "wrong". Besides, participation is voluntary. The next step is to communicate, to express one's thoughts to other people, to share them – maybe with one person at a time rather than with the whole group at once.

Background

These exercises will teach the participants the noble arts of thinking, expressing, listening and arguing. These are the basic skills needed to participate in development of democracy.

Various types of values exercises

There are various types of values exercises that can be used in different steps. Sometimes the participants should take a stand by reflecting and maybe writing a comment. Other values exercises require that they show their standpoints using their whole body, for example by walking to a certain spot which indicates a choice. This choice is thus shown openly to the whole group.

The following exercises are to be regarded as an introduction to values methodology. You should not just focus on the actual subject field but instead treat it as part of a greater whole. The objective is to try to prevent blockages that will put a stopper on debate. Your aim is to open things up, and to make people want to communicate their thoughts on the issues that may arise. Most examples are equally suitable for people of all ages. However, we still recommend that you as instructor make adjustments and changes to suit the group you are currently working with.

All exercises follow these three steps:

1. Individual reflection

It takes time to develop an opinion. Everybody is to start thinking individually. Discussions are to be saved for later and opinions noted down on pieces of paper.

2. Discussion in small groups

Form small groups of those who have come to the same conclusions. Now the participant is to listen to the opinions of his/her friends. In these small groups the participants will hear arguments similar to their own. Perhaps the participants will be given new arguments and grow in confidence.

3. Discussion in the whole group

Give the small groups an extra task – let each group select a spokesperson. The spokesperson is to initiate a discussion in the whole group. For example, the group should find out who has the shortest name, or which people have most red colour in their clothes. This means that everyone will get a chance to talk. The spokesperson is to summarize the discussion in the group.

Further aspects

1. Values exercises means that everybody answers the question. You answer with your body by standing on the spot corresponding for your choice. After hearing the arguments of your friends you can change your opinion and move to a new position.
2. The participants are trained in the noble art of listening. If you didn't listen – you cannot provide a summary.
3. In these exercises there are no rights and no wrongs. There are only different opinions.
4. Respect the different opinions. Do not correct facts given by participants during the exercise. Wait until later.
5. Be careful if participants ask you about your own opinion as leader. If you immediately reveal what you yourself think there is a risk that participants will assume your opinion is the right one. Participants may also try to guess the standpoint of the instructor instead of forming their own values and opinions.

Clarification of values

Purpose

To help the participants to develop values and train them in the noble art of communication.

What to do

The leader describes an important issue. The choice of issue is unimportant but in this presentation we have chosen the problems connected with a sudden increase in road traffic as an example. The leader describes the issue and provides some background.

The methodology builds upon three steps. Here is the first of these in the relevant exercise.

Step 1: Think by yourself

The leader continues:

– *Here is a statement about some solutions that I want you to judge. Draw a line in your notebook and place numbers from 1 to 6 along it.*

.....
1 2 3 4 5 6
.....

– *If you totally agree with what I say, I want you to check number 6. If you totally disagree, I want you check number 1, or you can check any of the numbers in between.*

This is the statement:

“The problems brought about by road traffic can be solved by technical development.”

– *Please, think on your own. Wait with any discussions till later. I want you to work in silence.*

– *Check the appropriate number clearly on the page in your notebook when you have made up your mind.*



It is important that the participants do not talk at this stage of the exercise. They must come to a standpoint on their own. If they talk to each other the most dominant participant will influence the others. When everybody has taken a standpoint and checked a number on their own line it is time for the next step

Step 2: Discussion in small groups

Put pieces of paper with the numbers 1, 2, 3, 4, 5 and 6 on the floor, one number on each piece of paper. Ask the participants to stand by the number they have checked on their line.

– *Dear participants. Compare your arguments with those of the people standing beside the same number as you are.*

As a participant you might perhaps find it a bit scary to walk up to your number. Your best friend, who is very knowledgeable, may have chosen a different one. You might be worried whether or not you have made the right choice, since your friend has come to a different conclusion.

When the participants discuss in small groups they will find that their friends usually have pretty much the same arguments as they have. They may even find new arguments. They grow in confidence.

Step 3: Discussion in the entire group

– *Dear participants, I have a little extra task for each group, who in your group has the shortest given name?*

The group is given time to find this out.

– *Dear participants I want that person to give a summary of the discussion in your group.*

Groups report one by one. Make sure that the person with the shortest given name gives the report. It often happens that the oldest, biggest and most influential person tries to report, instead of a younger not so confident person. Do not let anyone other than the person with the shortest given name, whoever that is, who give the report. Do not let anybody comment or add anything at this stage.

When all groups have given the summaries of their discussions the word is free. Everybody shall be given the opportunity to speak and be encouraged to do this.

Comments

Thinking takes time. It takes time to develop an opinion. Make sure you give participants enough time to come to a standpoint.

It is important that the participants check their opinion on the line in their notebook. When they have a clear checkmark besides a particular number in their notebook, it is likely that they will stand by that number on the floor. If they have not made a checkmark in their notebook, they may choose to stand besides some other number, where some knowledgeable person is already standing. This will probably feel safer to them.

Distribute the voice

The reason that you ask the person with the shortest name to report from each group is to make sure that the selection of spokesperson is random. Other alternatives are to ask for the person with the youngest sister or brother, the shortest little finger or maybe the person wearing clothes of the lightest color. Usually 20 % of the participants in a class give 80% of the answers. By this method everybody is given an equal chance to report.



The task of the spokesperson should always be to give a summary of the discussion in the group. When the participants get used to the methodology they will realize that they have to listen to each other if they may be picked at random to report for the group. In this way they learn to listen to each other.

Don't be too obvious!

When talking about exercise do not be too clear. If you explain all details very thoroughly you will probably end up with all participants standing by the same alternative and you will have no discussion. In the example above it is not absolutely evident what the problems are and what is meant by technical development. Let the discussion clarify the details.

Be careful if the participants ask you about your own opinion. If you immediately state this there is a risk that the participants that have chosen different standpoint will regard your opinion as the right one and their own as wrong. There is a risk that the participants will try to guess the opinion of the leader instead of thinking of their own. Wait until next lesson to relate your standpoint if the participants ask you.

In these exercises there are no rights or wrongs, only different opinions. Make it clear to the participants, that all standpoints have equal value and teach them to respect the views of others.

Why use this methodology?

- The objective of this methodology is to help the participants develop values and standpoints. It is not to transfer the standpoint of the leader to the student.
- In this exercise everybody answers. They answer using with their entire body by standing next to the alternative they have chosen. After hearing the arguments of their friends they can change opinion and move to a new position.
- Participants are trained to listen and to communicate with each other.
- Participants are trained in critical thinking and in taking a standpoint.
- This methodology might be called a basic course in democracy!

The exercise described above is just one example of an exercise according to the methodology for clarification of values. There are many varieties; for example four corners, listing, ranking exercises and uncompleted sentences. Even if these exercises seem to be a bit different they all follow the same methodology and they all have the same objective.

Incomplete sentences

Background

This exercise uses incomplete sentences as baselines in order to find out what the participants already know and the views they hold on certain issues.

Purpose

To find out more about what the participants think about certain issues before starting a new task or topic.

What to do

Incomplete sentences, like the examples given below, are written on a piece of paper or on the blackboard. The participants are asked to complete the sentences according to their own beliefs and opinions.

Examples of sentences:

- An animal that I would like as a pet is...
- The number of children I would like to have is...
- The natural surroundings where I feel most happy are...
- The most important things for me to learn in school are...
- I want a car because ...
- 25 years from now I will live in ... and work with ...

Cars are very useful because...

- I think we can solve the problems of climate change because...
- Solar light energy is better than generator-based electricity because...
- The ecological aspect forms an outer framework for all human activities because...
- I/we can bring climate change to an end...
- I/we can reduce waste accumulation by...



Ranking

Purpose

To introduce a topic or to get to know each other in a group.

What to do

The idea is to rank alternatives from 1 to 3, where 1 has the highest priority. Ask the participants to write down their answers on paper first and then discuss the rankings with other participants. Ask some of the participants to explain their opinions to the whole group.

Prioritising from a number of different alternatives is also a model that can be used for individual reflection and group discussion. It is possible to vary the degree of difficulty by having alternatives that are not quite so clear cut and that depend on a variety of circumstances.

The questions and ranking examples can be adapted to suit the particular topic you are working with.

Examples of ranking questions:

What would scare you most of all to meet in the wild?

- A buffalo
- A lion
- An unknown person

What needs to be prioritised in your home community?

- Wastewater treatment
- Bicycle paths
- A football arena

What would you prefer to do on your school Saturday outing?

- Visit a National Park
- Watch a game tournament
- Visit a historical site

Which organisation would you rather be a member of?

- WWF
- The Red Cross
- I would prefer to start a new organisation

Try to rank the following questions when thinking of how a good consumer should act, start with the most urgent:

- Is your purchase certified as a product or service of quality?

- Do these products meet the minimum environmental standards as indicated on the labels?
- Do you read and understand the instructions on the product labels before you buy or use them?
- Do you question the provider about anything you don't understand?
- Do you pay attention to the safety symbols and regulations displayed on the product for your own safety and safety of others?
- Do you buy tools, machines and appliances that protect natural resources and biodiversity such as water-saving taps, water-harvesting systems, wood-saving stoves, solar-power torches and energy-saving bulbs?
- Do you dump your garbage in the assigned community container?
- Do you recycle?

Which is the best way of reducing poverty in Africa?

- Through education to create knowledge and skills
- Through scientific research
- Through providing financial assistance
- Through conserving the environment

Which is the cause of climate change?

- Natural occurrences
- Human activities

Comment

As a consumer, it is your responsibility to make informed choices about the products and services you purchase and use. What we buy, how we spend our money and our investments all impact the environment and biodiversity. An important tool for being a good and environmentally friendly consumer is to know your rights and responsibilities.

Extra

Another good example of ranking is to individually reflect and write down lists that can later be used as a starting point for making priorities. An example of this is to ask the participants to "Write down at least ten of your favourite meals".

The participants should make their lists without speaking to one another. It is important to allow everyone to think for themselves without being influenced by other people's opinions. When the participants have written their lists, they can prioritise them according to taste, cost, environmental impact, easy of cooking etc. It is important to remind them that there are no right or wrong answers. When the participants are ready they can compare their lists in pairs and discuss their priorities and reasons.

Change circles

Purpose

To get participants to take a position on simple statements straight away and indicate their standpoints in relative anonymity.

We can only succeed by
active participation!

Lucas Smarts

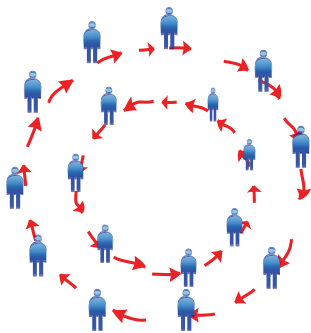
Background

This is a quick and silent exercise. The nature of the exercise is such that participants can indicate their standpoints in relative anonymity. There just isn't time to observe how others are responding. Begin the exercise with basic and neutral questions so that the participants get some idea of how it works.

You can also use change circles as a warm-up exercise to get people's ideas flowing and to get an overview of what your participants already know about a subject and how they position themselves with regard to certain issues.

Instructions

The group or class forms two circles, an outer circle and an inner circle. The circles then move slowly in opposite directions. The instructor reads out statements and if you agree you change circle and direction. If you don't agree with the question you stay in your existing circle and continue moving in the same direction.



Examples of questions that can be used:

Do you ...

- understand the instructions
- like to sleep late in the morning
- think it is important for you to hear that you are doing your job very well
- enjoy your job very much
- like to read commercial advertisements
- like rainy days
- smoke
- sometimes throw plastic bags or bottles on the ground
- always close the water tap carefully
- feel that nuclear power is a good way of producing electricity
- feel that ecological issues are important in political elections
- feel that the next generation of children will have a better life than we have
- learn important things in school
- think that we all are responsible for the future
- you think that politicians are responsible for sustainable development
- like meat
- pollute soil or water
- think that we all are fighters
- create jobs

- promote poverty in the society
- support universal education in primary, secondary schools
- care about HIV/AIDS affected households
- think that the level of water in Lake Victoria is being reduced due to deforestation
- learn about the environment in all subjects in school
- actively conserve the environment
- use natural resources effectively
- consistently plant trees in your school
- promote sustainable development
- love nature.

Stand on a line

Purpose

To explore people's attitudes and values, and clarify different perspectives to the whole group. To enable people to challenge positions, and encourage them to communicate their opinions.



Before you begin

The instructor introduces the specific issues one at a time and asks the participants to think very carefully about their responses. The first issue is introduced and the participants are asked to draw a line on a piece of paper and mark 6 positions on it, numbered from 1 to 6. Each person marks their own position on the line with a cross according to their viewpoint.

What to do

The leader reads a statement such as "I am responsible for how the future will be". Participants will determine for themselves whether they totally agree (no.1) or totally disagree (no. 6) or any number in between and indicate this on the paper. After thinking about this on your own, without any contact with anybody else, you go to the number you

have selected which is placed on a line on the floor or ground. Those who end up next to each other, tell each other how they reason. Then it's time for a discussion in the whole group. See the three steps on page 36.

After hearing the arguments advanced by others some people may want to change groups. They can be invited to do this if they so wish. Before starting the exercise explain that everyone can freely show their feelings and express their opinions about the different topics without restraint.

Statement:

- Who has precedence, nature or man?

Nature			Man		
1	2	3	4	5	6

Statements:

- Everybody should cut down on their use of energy!
- Everyone is accountable for environmental conservation
- Climate change effects can be reduced by planting trees
- We must not cut down trees
- Native commonsense helped conserve our environment better than those things we learn at school today
- Our traditional foods are better than the foods we eat today

Agree			Disagree		
1	2	3	4	5	6

Are the following observations not sustainable or are they sustainable?

Observations:

- Teachers and pupils washing their hands after visiting the bathroom and before eating.
- Pupils, teachers, parents planting seedlings of trees or doing handicrafts
- Cutting down trees and cultivating in wetlands
- Accumulating garbage in the household and by the roadside
- Burning bushes
- Buying products that you can recycle, reuse and repair

Not sustainable			Sustainable		
1	2	3	4	5	6

Pictures

Use pictures from newspapers or look in the Resources 2-5 chapter at the end of this book.

Every participant is given a picture. He/she identifies an activity that is ecological, social or economic. Then he/she goes to the appropriate position on the line (all this being done in silence).



Those who end up next to each other tell each other how they think.

Discuss the different views together.

Those who are located on the non-sustainable half of the line, how can we move them so that their activities will be more sustainable?

Comments

Note that in both of the above values clarification versions the participants are asked to communicate their views. It is important to explain at the beginning that everyone has the right to express an opinion and that no one will be judged or corrected for having a belief or opinion that is different to those of the others. Tell everyone that if they want they can change their standpoint on any particular value at any time. When the exercise is over, ask everyone to return to their seats. As a follow-up at a later date you can ask the same questions again and see whether the views originally held have changed and if so in what way.

Four corners

Purpose

To help the participants to form values and opinions based upon a broad understanding of their own and others feelings, opinions and values and to train them up in the noble arts of listening, speaking and arguing.

What to do

This exercise is suitable for more complex questions. Three alternatives and one open question are always included in the exercise. There must always be an open question for those having answers or responses that are not covered by the other alternatives. Each corner of the room is assigned a specific answer.

The instructor reads out the question and indicates which corner of the room has been allocated to which alternative. Each person is encouraged to silently reflect on which alternative to choose before moving to the relevant corner. If somebody immediately goes to a corner there is a risk that others will simply follow and choose the same alternative without first reflecting on why they are making that particular choice.

When people have assembled in their various corners ask them to discuss, as a group, why they have chosen that particular alternative. The participants are allowed to change corners if they change their minds. Encourage the participants to think independently and make their own decisions.

Three examples related to the environment:

– *What is most important to you when you buy a new sweater?*

Corner A: The price

Corner B: The style – whether it's in fashion

Corner C: Where it comes from and how it has been produced

Corner D: Open for alternative responses

– *Who is responsible for the destruction of the wetlands?*

Corner A: The farmers

Corner B: The government

Corner C: The banks

Corner D: Open for alternative responses

– *Who is responsible for climate change?*

Corner A: Ordinary people

Corner B: The industrialized countries

Corner C: The government

Corner D: Open for alternative responses



Four visions of the future

Follow the procedure in the “Clarification of Values” exercises.

Purpose

To help participants form values and opinions based upon a broad understanding of their own and others feelings, opinions and values concerning visions of the future.

What to do

The exercise is built mainly upon four alternative scenarios related to climate change.

1. Let's think about the future one generation (30 years) from now. Read the four visions and make your own judgement. How do you think the future will be and how do you want it to be?
2. Ask participants to read all four alternatives on their own in silence and mark their standpoints on the line. Notice that there is a big difference between “Desirable” and “Likely”. That which may be regarded as likely might not be desirable at all.
3. Underline the title of the vision that is deemed most likely to happen as opposed to what is most desirable.
4. Place out four pieces of paper, each with the title of one of these visions, on the floor.

Stand on the alternative you have marked as most likely.

Follow the three steps on page 36.

5. Follow the same procedure for the “Desirable” future.

Vision #1

Vision #2

Vision #3

Vision #4

1. The threats were exaggerated

Fears about climate catastrophes were fortunately not realised. The weather kept on changing as it always had done. Modern technology made it possible to store carbon dioxide underground and as a result emissions did not increase at the same rate as they did during the 20th century. This technology made it possible to utilise the existing huge deposits of coal while renewable sources were developed.

A new generation of nuclear energy plants contribute significantly to the production of energy

Using solar energy, hydrogen gas is produced and utilised as the major fuel in transportation systems. Solar cells and wind power generators provide electricity.

With these new technologies there is no longer any lack of energy in the world. Economic development prospers and standards of living are on the increase in most countries.



2. What happens, just happens

Energy demands and the combustion of oil and coal has increased rather than decreased

Rich countries were not willing to change their standards of living. Developing countries have multiplied their consumption.

Changes in climate turned out to be even more severe than the scientists had predicted. Massive droughts, flooding and storms affected areas that weren't able to cope with these conditions. Food shortages increased.

The global economy is in crisis. Our whole society is at risk. News broadcasts are dominated by the mounting problems.



3. Some are worse off, some better

Cold countries have profited from rising temperatures. Northern countries like Sweden have increased their outcome from agriculture and forestry

Poor countries that usually are hot and dry have been negatively affected by rising temperatures. Drought, floods and storms have caused enormous damage. Large numbers of environmental refugees have exacerbated international relations. International conflicts are to a large extent a function of the scarcity of resources such as food and water. Climate war is a new concept.



4. We made it!

All the doomsday prophesies were wrong. The people of the world realised that climate change was real. A new generation of political leaders came into power. The global society agreed upon effective means of climate control. Laws, emission fees, and emission rights as well as changes in people's priorities and lifestyle, resulted in decreased emissions of carbon dioxide.

The amount of energy used decreased considerably due to energy smart technologies. Renewable resources dominate all kinds of production and energy consumption has decreased significantly.



The hot seat

Purpose

To help the participants form values and opinions based upon a broad understanding of their own and others feelings, opinions and values and to train them up in the noble arts of listening, speaking and arguing.

What to do

Arrange chairs in a circle and ask the participants to sit on these chairs. You can also do the exercise outside sitting on the grass. In this case you must indicate locations with an object.

The instructor then reads out a statement prepared in advance that is relevant to the topic or theme being studied. Those participants who agree with the statement move to a different chair and those who do not agree remain in their places. The participants are then encouraged to explain their thinking to the person sitting next to them or to the whole group. The instructor then reads out the next statement and the same procedure is followed.



Examples of statements:

- I have visited Lake Victoria several times
- Lake Victoria is a beautiful lake
- Eating fish from Lake Victoria is dangerous
- The opinions of Kenyan boys and girls are similar to those of Ugandan boys and girls
- People in the past had a better life than people of today
- We have democracy
- There is a big difference between schools
- All polluting factories should be shut down as soon as possible
- China is a leading country

Comments

One of the most important aspects of values clarification exercises is not the actual position taken by the participants but the fact that they begin to reflect about the questions for themselves. The actual process – thinking, motivation and oral communication – is more important than the end product, i.e., their response.

You can also allow the participants to formulate statements themselves. As with the other values clarification exercises there are no “correct” answers to these questions. As an instructor you should avoid giving your own answers as there is a risk that the participants may construe your answer as the “correct” one.



ESD METHODS

There are no special “ESD methods” that have been exclusively designed for teaching and learning for sustainable development. However some methods are much better suited to ESD than others. Typical for many of these is a focus on the learning process. The method chosen must suit the specific teaching or learning situation. The learning environment must also be created especially by each professional educator.

Opening exercises

Purpose

To do some easy and pleasant activities which will open up relations between the participants.

What to do

a) Form a pair with someone you haven't talked with today.

Tell each other about some positive development and good things that you have experienced that has taken place in your home area recently. It may be something big or something small.

b) Form new groups of three persons. Take a few steps across the floor. Join persons that you haven't talked to yet. Tell each other about your expectations for today's work. Choose a member in the group who will give the participants a brief summary of the discussions. Make sure that notes are taken.

c) Ask the participants in the small groups to present themselves:

My name is....., I come from....., I am good at (something outside school/work) (keep it brief).

The Closed bottle

Purpose

To learn to think in terms of cycles and understand the need to preserve natural resources and make priorities in a limited world.

Before you begin

Ensure that you have at least one jar or large bottle with a wide neck, a plant, soil and water.



What will happen to the plant in the bottle?

How long will the plant live?

How long will water, fertilisers and air last?

What will be the weight of the bottle in one year?

What to do

This exercise is a metaphor illustrating natural eco-cycles.

Put some soil and a plant in a bottle and watering it a little. Close it and keep it in indirect sunlight. The bottle should not be opened again. Nobody should water the plant. Study what happens over a long period of time. Ask the participations to discuss the following questions:

- What will happen to the plant in the bottle?
- How long will the plant live?
- How long will water, fertilisers and air last?
- What will be the weight of the bottle in one year?

Ask the participants to discuss these questions in small groups. Continue the discussion in the whole group/class. Probably some of them will start moving their hands in circles to illustrate their explanations. This is a good way of expressing the meaning of eco-cycles.

Comments

The bottle can be regarded as a miniature model of mother Earth. Green plants absorb carbon dioxide, water and sun energy and produce oxygen and carbohydrates. You can't see any living creatures in the bottle, but if you get close to the soil you will perhaps recognise small bugs. In fact there are billions of microorganisms. In one spoonful of soil there are as many microorganisms as human beings living on the earth. Actually there are only minor differences between microorganisms and human beings in this sense. We are all animals that depend on the decomposition of plant matter.

This experiment is just as valuable for preschool children as for university participants. For small children the message is to realize that we must be careful how we use natural resources. We live in a closed system. Nobody will ever fill it up again if we run out. We only have one earth to share with coming generations.

The most important thing about this exercise is discovering new patterns for thinking. To think in terms of cycles instead of the traditional pattern of thinking in terms of linear consumption.

When starting a bottle, use soil taken directly from nature. It should not be too wet and not too dry. If you add extra water there is a big risk that the bottle will be full of mould after a while. Keep the bottle in a place with light but not in direct sunlight.

The mission

Start this exercise by doing the "The Closed Bottle" exercise. This will enable the participants to acquire the knowledge necessary for doing "The Mission".

Purpose

To use a model of the earth to make us understand that we all live within a framework of limited resources and that a sustainable solution to future resource management is to have an ecological approach.

Sustainable development means managing the use, development and protection of natural resources in a way which enables people and communities to provide for their social, economic and cultural well being and for their health and safety now and in the future.

Before you begin

For each group you need a large piece of paper and some colour crayons.

What to do

In this exercise a space ship is a metaphor for our planet – Mother Earth. The challenge is to set up the conditions needed to maintain life within a limited space over a long period of time. Give the participants the following introduction:

The greatest adventure in history

You have been appointed by the Planetarian Council to participate in the greatest adventure in the history of mankind. You have to embark on a journey in a giant spaceship capable of travelling an unimaginable distance.

The following conditions apply:

- The journey will take 6 000 years
- You do not have to worry about piloting the ship. It is already equipped with an engine and fuel for the journey
- The gravity on the ship will be the same as on earth
- You may only use established technologies
- You have access to solar energy throughout the whole journey
- The diameter of the ship is 5 km
- You should suggest what to bring with you

There will soon be a meeting with the Planetarian Council where you are expected to contribute with your proposals on what to bring.

- Prepare this meeting by writing your own personal list of the things you will bring on this long journey
- Please work on your own and keep your thoughts to yourself for a while

Smaller groups

After 15–30 minutes, form the participants into smaller groups and ask them to compare their lists. They are expected to agree upon a common list for each space ship. These discussions should take at least one hour.

Picture

Then it is time to draw a picture illustrating the ship. Make it circular. Your illustration should be aesthetically pleasing but also show the all ship functions. In addition you can insert short texts describing the most important functions in more detail.

Comments

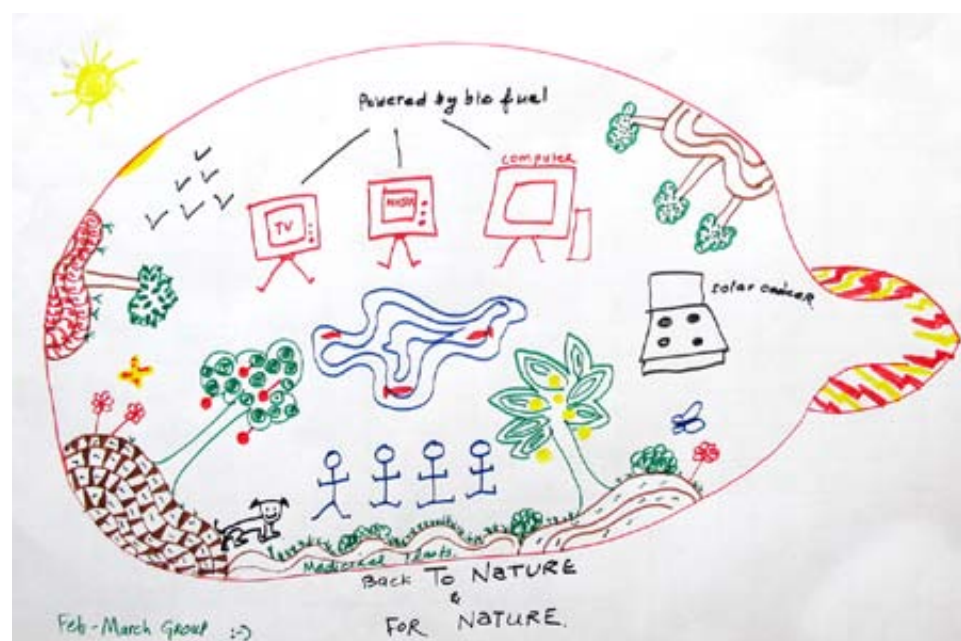
It is very important that the instructor doesn't do the all thinking for the participants. Don't tell them what issues have to be solved. Usually they will start by solving food, housing and clothing needs. They will describe the water cycle and how to provide access to clean drinking water.

It is very important that participants are given time and support to find solutions on their own. The process of thinking takes time. Here follows a sequence illustrating how participants and the instructor can cooperate:

- Do not do the thinking for the participants. They need time to come up with their own solutions.
- Give participants acknowledgements for their solutions and ask them if everything is set for a happy and fulfilling life over a period of 6 000 years
- Soon somebody will come up with the question: "Who should be on the ship?". Ask the group to write a little text somewhere with the headline: "Population"
- Repeat your question: "Will everything function well for the coming 6 000 years or is there anything else that needs to be discussed?"
- Don't tell your participants what issues you have in mind. After a while they will find questions by themselves: "How should they take decisions regarding these questions?"
- You can work with the metaphor of the spaceship during a full day or on repeated occasions. Since this task requires proficiency in many subjects it is a good idea to find a way to integrate different aspects.
- Give the participants time for reflection. Thinking takes time and in this task the process of thinking is more important than the result itself.

Comments

This exercise was originally developed by Wolfgang Brunner, Sweden.



The greatest adventure in history

You have been appointed by the Planetarian Council to participate in the greatest adventure in history of mankind.

You have been chosen to participate in a journey with a giant spaceship capable of traveling an unimaginable distance.

The following conditions apply:

- The journey will take 6 000 years.
- You do not have to worry about piloting the ship. It is already equipped with motor and fuel for the journey.
- The gravity is the same as on earth.
- You may only use already known technology.
- You have access to solar energy through the whole journey.
- The diameter of the ship is 5 km.
- What do you suggest to bring?

Issues to be raised

Who will decide? The solutions will be very varying in different groups. Some will invent direct democracy. Some will invent the parliamentary system. Some will appoint a dictator, a king – the smartest person who is given the right to take all decisions. Different groups will invent all decision making systems ever practiced during the history of mankind.

Do we need laws? Some groups develop the laws of their ship. What happens if somebody does not obey the laws? Do we need police? Do we need prisons or are there other possibilities?

How are resources going to be distributed? Are we going to have collective farming or a capitalistic system?

How will knowledge be transferred to coming generations? Will we have a traditional school? Let's make the curricula. Some invent a system where holders of special competencies train youngsters to follow them.

Are discos, sport facilities, theatres and music halls essential? Food is a necessity but is culture important? What makes life worth living? What are preconditions for people to live a life in harmony and peace? Why do we have so many wars on earth?

Why should we go on this trip? Well isn't that a way of putting the eternal question: "What is the meaning of life?"



Green or red?

Purpose

To consider various statements and develop the participant's own thoughts.

Before you begin

Prepare green and red "voting" papers for each person in the group.

Background

This exercise is a more provocative version of values clarification and involves problem-solving in groups with only two possible alternatives. The discussions that are held both before and after "voting" are the most important educational aspects, so be sure to allow time for discussions either in pairs or in groups. Voting is a useful way of making lectures and panel debates more interactive and also for interrupting or drawing never-ending discussions and debates to a close.

What to do

This particular exercise involves deciding what is possible for the fishery industry and fish processing in the future. As this voting system is open and visible, all people need to do is to hold up whichever colour they choose to register their vote. If they agree with the statement they hold up a green paper and if they do not agree they hold up a red paper.

Agree = **GREEN**

Do not agree = **RED**

We start with something simple so that everyone understands how the exercise will work.

Weather

- The weather is wonderful!

Fishing

- Lake Victoria is a dead lake!
- It's possible to catch and process fish from Lake Victoria more rationally!
- It's possible to change methods of catching fish!
- It's possible to change methods of fishing to prevent overfishing!
- Lake Victoria has no future!

Note that in this exercise the voting results give a very clear picture of whether people agree or disagree, but does not say anything about how or why or what needs to be done to improve the situation.

Role-play

Purpose

Role-play allows people to separate relevant information from less important information, to express and to defend opinions, to listen to others and to be tolerant of different opinions.

Background

Role-play helps you to put yourself in somebody else's shoes, imagine what their situation might be like and understand something about your opponent's views or opinions. Role-play is also designed to foster and develop personal values. Playing out real-life situations in this way helps us to build up enough confidence to take responsibility for what is happening in different areas and activities and affect the outcomes.

Role-play therefore enables us to take part in a number of very different real-life situations and discuss possibilities and opportunities for a variety of outcomes.

What to do

Before the actual role-play begins the participants should be provided with a description of the situation in question, details about the characters involved and what they are expected to do.

The participants then decide which roles they would like to try and how they are going to portray the characters in the particular scenario they will work with. For this they will need to work out their arguments and how they are going to get their message across. Those who aren't assigned roles or who prefer just to be observers can make up the audience and take note of what is happening in the role-play.

At the end of the role-play both the characters involved and the audience are encouraged to discuss what has taken place and evaluate the processes and outcomes. Apart from helping to build up confidence, role-play is also a good way of helping participants to develop problem-solving strategies and learn how to act in different situations.

Comments

As an instructor it is important to ensure that the other participants do not judge the role-players too harshly. The whole point of role-play is that it allows you to step outside your ordinary every-day character frame and play the bad or the good guy without feeling inhibited. You don't have to like the character you are playing either! It's simply a chance to experiment with something that is quite different in a safe environment.

Preparing the participants for the role-play

If background information research is necessary for the role-play the instructor should allow time for this before the actual role-play is performed. Giving the participants time to read and discuss both the topic and the roles is also important. When it's time for the performance you or the group can select the actors, while the remainder of the group can act as advisors or supporters to the individual actors and observe what is being played out. This is a good way of motivating the participants to learn a lot about the background of a topic.

Brainstorming is a good way to open the floodgates to new and unexpected ideas. The method is to solve problems and come up with new ideas. For the method to succeed, certain conditions must prevail. There must, for example, be an open and tolerant atmosphere in the group.

Some rules:

- Criticism is forbidden in brainstorming.
- Encourage spontaneity, and originality
- All ideas are good ideas
- Quantity of ideas is important
- Encourage the courage to dare to make mistakes
- Participants develop each others ideas
- Number of participants: 5-8
- Everyone should be allowed to express themselves
- Write these ideas on a large paper or similar

The action

The instructor can introduce the role-play scenario to the audience or a student can be chosen to do this. In any case, introducing the role-play scenario is important so that everyone, the actors and the audience, knows what to do and what to expect. This introduction doesn't need to be very detailed and it should certainly not reveal too much about what will or will not happen in the actual role-play! The person doing the introducing should introduce the role-play, outline the problem being portrayed, indicate how long the play is likely to be, whether some of the actors will take "time out" from the play for advice and what will happen after the role-play (i.e., that a discussion of the issues raised will take place). After this introduction the actors take over and play out the planned scenario.

Whole group involvement

If the entire group or class is to be involved in the final discussion they will need to know this in advance so that they can make notes during the role-play if they wish.

One way of starting the discussion is to first of all allow the players to say how they felt in the roles and whether alternative actions might have been possible. Such a discussion can then be widened to include the audience's views. The entire group can also discuss whether the actors could have played their roles differently, and if so, how and why.

A role-play: The reclamation of the Yala swamp for agricultural use



Background

The Yala swamp is a complex of wetlands in the Delta of the river Yala on the North East shore of Lake Victoria. It is the largest fresh water wetland in Kenya and measures about 17,500 hectares. It supports a large biodiversity and is a source of livelihoods for the densely populated Luo and Luhya Communities in Kenya who live around it.

Papyrus

The most predominant vegetation in the swamp is papyrus (*Cyperus papyrus*), with phragmites Mauritianus in shallow and swamp grasses around the periphery. Within the swamp there are the lakes Kanyaboli and Sare which are surrounded by a thick fringe of papyrus vegetation. The Yala swamp is the largest papyrus swamp in the Kenyan sector of Lake Victoria making up more than 90 % of the total area of papyrus vegetation.



Birds

The Yala swamp supports a large bird population, e.g., *Chloropeta gracilirostris* and *Laniarius mufumbiri*. Others birds common in the area are *Gallinago media*, a palaeo-atric migrant and East Africa's endemics such as *Cisticola carruthersi*, *Bradypterus carpalis*, *Reinous kollensis*, *Balaeniceps rex casmerodius albus* and *Pornama pusilla*.

Fish

Lake Kanyaboli which measures about 10.5 km² was formed as a result of flooding of River Yala. It is home to various indigenous fish species that once flourished in Lake Victoria. The fish species of commercial importance in Lake Kanyaboli include *Oreochromis niloticus*, *Protopterus*, *Tilapia Zilli*, *Oreochromis*, *Leucosticus* and *Doreochromis variabilis*. Fish production from Lake Kanyaboli is as much as 76 649 Kgs (76.6 metric tonnes) which fetches up to about Kshs. 5880 million in one calendar year. The Luo and Luhya Communities who occupy the southern and northern parts of the Yala swamp respectively earn their livelihood from the Lake Kanyaboli fishery.



Natural filter

The Yala swamp acts as a natural filter for a variety of biocides and other agricultural pollutants from the surrounding catchment area and also effectively removes silt before the water enters Lake Victoria.

Production

In addition to the environmental significance of the papyrus vegetation, it is harvested for the large scale production of mats and a wide range of ornamental objects.

Rice production

The drainage of the Yala swamp was begun as early as 1956 by the British Colonial government. As from the year 2004 the Kenyan Government allowed a Multi National Company called Dominion Farms Kenya Limited to convert the Yala swamp into large scale agricultural land. The company is owned by an American Entrepreneur, Mr. Calvin Burgess of Edmond Oklahoma. The company intends to extend its operation to cover districts such as Bondo, Siaya and Busia in Western Kenya. The large-scale farm will be



put under rice, cotton, maize, sun flower and ground nuts production. By producing rice in particular Kenya's food imports will be reduced by over 90 000 tonnes annually. The processing of rice already takes place on the farm. Bee keeping and fish farming practises will be introduced in the swamp as well.

The flow of the River Yala is diverted directly into the Yala swamp. Formerly the river flowed through the Eastern Swamp into Lake Kanyaboli then into the main swamp and finally into Lake Victoria via a small gulf.

A silt clay dyke cuts off Lake Kanyaboli which receives its water from the surrounding catchment area. A culvert across the mouth of the Yala, some metres above the level of Lake Victoria has cut off the gulf and the lake and through back flooding created Lake Sare. Water in the main channel and lake is well oxygenated but oxygen levels in the stagnant parts of the swamp are low.

Characters

In support of the reclamation project – Proposers

1. The Director of the Company

The director of the Company endorses the task of converting a wetland into a large-scale agricultural initiative. In his opinion the large tract of land is already a wasteland and it doesn't matter if it now will be used as a production area.

Food crops, especially rice, will be produced for local consumption and even for export. The project will create employment opportunities for the local people thus reducing the serious unemployment problems in the region. Better modern public utilities will be established in the area which will translate into good livelihoods for the local communities. Last but not least communication lines will be laid down which will make the area less remote, which is otherwise a serious concern.

2. Local leaders

The local administration perceives the project as a source of income for the local people who are largely unemployed and poor. The level of security will increase as a police post will be set up in the area. The establishment of schools and hospitals/health centres will reduce the problems of illiteracy and poor health and provide other benefits to the communities.

3. The unemployed

The unemployed openly support the project as it will generate employment opportunities. Once employed their standard of living is expected to improve as their income increases. This will make it easier for them to support dependents, children and other family members.

4. The Minister for Agriculture

The Minister for Agriculture sees the project as a gateway towards guaranteeing food security in the country, which often relies on imports to feed her large population. Huge foreign exchange savings are expected to be realized. Part of the savings will be used to keep the Lake Victoria environment clean. Food processing industries will be established thus creating more employment opportunities. Last but not least, the poverty index in the Lake Victoria region will be reduced significantly.

Those opposed to the reclamation project – Opposers

1. The conservationist/environmentalist

The conservationist/environmentalist sees the Yala swamp reclamation project as a definite threat to the varied plant, fish and bird life of the area (biodiversity). This unique natural heritage needs to be protected and conserved for the good of the current and future generations. There are vast tracts of land in Kenya which ought to be cultivated for food production but this must be carried out in a sustainable way. The site needs protection under the Ramsar Convention. Siltation of Lake Victoria will reduce the prevailing fish stocks considerably. The lake will be polluted by chemicals emanating from agricultural farms.

2. The fisherman

The fisherman definitely sees the project as a great threat to the exploitation of fish on which their livelihood depends. They will be deprived of a reliable source of income, on which they have depended for a long time. Fish supplies will decline and the cost of living will go up.

3. The artisan

The artisan is strongly opposed to the destruction of papyrus vegetation. Papyrus is the principal source of the raw materials used in the production of mats and other valuable household products.

The project will not offer an alternative source of income to cottage industries.

4. The eco tourist

Eco tourism will collapse totally following the disappearance of invaluable biodiversity. The economic base of the local populace will be threatened and its future uncertain.

Start the role-play

a) Roles

The participants choose different roles.

Who will be the eco tourist, the politician or the fisherman?

b) Background

All characters read the background text about birds, rice etc.

c) The scenario

The Yala swamp is the largest freshwater wetland in Kenya. The director of a Multi National Company wants to expand the large-scale farming in the area and he gets support from the local leaders and the unemployed. But there are some fishermen, artisans and others which are protesting against the exploitation.

d) Discussion

During a meeting, all characters are seeing each other to debate the question: "Will the Yala swamp die if we are draining the wetland?"

Forum play

Purpose

To challenge the attitudes and values of the participants and make them visible in a safe environment.

Background

The different roles adopted and interactions between the audience and the actors are useful not only for learning how to solve make-believe conflicts, but have also proved useful in solving real conflicts. Forum play as a method emphasizes different crisis situations in a constructive way illuminating a variety of aspects.

Forum Play is a valuable method for personal development in that it works with emotions and values and offers a safe space for expression. The process is just as important as the outcome.

Instructions

Forum Play opens with a role-play situation that develops into a crisis. After the entire situation has been played out a short break is taken, after which the entire sequence is repeated.

After this the audience takes over and, with help of a spokesperson, decides which actors they want to replace. When this has been decided and the actors have been replaced, the role-play begins again, although the play can be interrupted at any time by someone from the audience shouting “Freeze!” or “Stop!”. A new person then takes over one of the actor’s roles and a new twist to the story becomes possible. The play continues in this way right up to the end of the “story”. A discussion between the actors and audience then follows.

Example of a forum play:



The lion and the farmers

Purpose

To understand problems with wild life in common domestic situations.

What to do

It is late April and two farmers are out tending their goats and a newly born kid. They find the animals in good condition grazing in the meadow. They check the water trough and find cat-like tracks in the mud beside it. They follow the tracks and behind some bushes they recognise a shadow – a lion near the fence. The goats are not very far away and the farmers understand immediately what could happen.

Later the younger farmer contacts the county administration and asks for help, but is told that there is nothing they can do. The lion is protected by the law and, as the lion has not harmed the goats or their kids, there is nothing the farmer can do either.

The following day the farmers find a dead goat and a dead kid and a second kid seems to be missing its mother. The farmers involve people from the village. The older farmer starts to track the lion and meets an ornithologist and a WWF supporter. They know that lions are protected by law, and become suspicious when they hear the story and see the farmer carrying a gun...

FREEZE the action here!

At this critical point a short break is taken, after which the sketch is performed once more. During this repeat performance the audience can intervene at any time and replace some of the “actors”, and instead play out another possible course of action. Can you identify what alternative courses of action would be possible? Where? Is it possible to resolve the crisis positively for any (or all) of the different parties?

Case studies

Purpose

To encourage the participants to analyse and discuss specific dilemmas and enable them to develop their ability to formulate a variety of arguments.

Background

A number of features are common to so-called cases or case studies:

- A case study describes a real situation
- A case study relates to a problem that has to be solved and where decisions have to be made
- A case study is normally described from the decision-maker’s viewpoint and allows the participant to assume this particular role
- Both source and background materials are authentic and describe a situation that has actually taken place
- A case builds on field data and real-life observations or research in “the field”, using documents, interviews, articles, reports etc.
- The content of each case varies and often involves a decision-making situation

Case studies can be taken from real-life situations found in books, newspapers etc. This method also lends itself to guided discussions where the instructor prepares the material and the participants work in groups with a final discussion to round off the proceedings. Cases can be chosen for different reasons, e.g., in order to examine different values and ways of doing things, to learn communications skills, to learn management skills and so on.

Gold mining in Tanzania

This case is about Tanzania, one of the fastest emerging gold producers in Africa, and problems associated with gold mining.

What to do

1. Read the following text about gold mining:

Tanzania is one of the fastest emerging gold producers in Africa, and is now the continent's third largest gold-producing country after South Africa and Ghana. Artisanal miners were the first to discover and mine gold at the present day locations of large-scale mines. Companies came in later to start large-scale mining.

Artisanal and small-scale mining in Tanzania may pose some social and health challenges when equitable and sustainable development is promoted. The miners and their families are subject to health hazards when using mercury during ore concentration.

Due to a lack of appropriate tools, these artisans use open heat to separate gold from mercury and thus risk their lives by inhaling mercury vapour.

Due to ignorance, the detrimental health effects of this practice are associated with witchcraft which provokes conflicts in the community. These activities sometimes poison the waterways thus endangering the communal water supply.

The ecological footprint of these artisan miners may become substantial, leading to luxury consumption since they earn more than local farmers and government employees.

2. Search for more texts and materials about gold mining.
3. Talk in the group about the problems connected with gold mining. Has anyone personal experience of this? Is the text credible? How can the environmental and health problems associated with mercury be solved?

Drama, music, dance, poems

Purpose

Creating awareness about any of the ESD cornerstones, promoting self-esteem, skills and values in the individual learner.

What to do

Prepare/develop a theme about the situation that you want to address. Compose some music, choreograph a dance routine, and write a play, story or poem.

An example

A primary school in the community has problems with wild animals and thieves. The animals eat the crops and the thieves steal the fruit and vegetables they produce. The school is supposed to use the vegetables as food for the pupils and sell them on the market to provide revenues for the school.

The school wants to portray the situation as a drama with accompanying music and poems. First they discuss the pros and cons of growing their own produce and write them on the blackboard. A group of pupils then puts together a little sketch. Another group makes some music and practices songs and dances. The class selects the students who will participate. A leader is appointed. The props that are needed are borrowed from home or are created using simple materials and objects found in nature.

Finally it's time for the big day when the play is performed. The students invite all school pupils and community members to the show.



Example of other themes:

- Our lake is our future
- A sustainable use of water
- Living sustainably with one Planet
- Upstream and downstream, wetlands connect us all

Study visits

Sustainable development is, among other things, seeing the linkages between ecological, social and economic aspects. Going out in the environment to see how reality plays out is an important part of ESD. When you do a study you must make careful preparations.

Purpose

To appreciate the theoretical and practical (action learning) components, to inform yourselves about the environment, to develop research and investigative skills. To promote the curiosity and first hand experiences of young scientists

What to do

Discover the city

The world is increasingly urban with more than 5 billion people, 70 % of the world's population, projected to live in cities by 2030 with over 40% of them living in slums. Most of the challenges of human ecological footprints (look at page 73) and the solutions themselves will be linked to cities. You can find urban landscapes everywhere. Creating sustainable future cities where residents will be able to enjoy a high standard of living is a central issue.

In this exercise you will see and understand the linkages between the city's organic component and its inhabitants and how they interact with the city and you will explore the sustainability of your own local community.

Tasks

The participants are divided into small groups and select one of the following tasks:

- a) Interview officials responsible for different aspects of the municipality's activities.
- b) Interview people living in the city.
- c) Make an inventory of the ecology.

Prepare

Ask the participants to do the following:

- Make a schedule. How much time do you have?
- Do you need to interview someone? Contact the person in question and fix a time for a meeting.
- Develop the issues to be addressed as a questionnaire.
- Determine how the final results are to be presented: as a report, orally, as drama...

Officials

Examples of questions to be put to various officials (visit various departments e.g., traffic, environment, living and health):

- What do you work with?
- Name three things that are positive in the city from your point of view?
- Name three things that are negative the city from your point of view?
- On a five-point scale, how sustainable is the city?
- Has the city a small, medium or large ecological footprint?
- How is the biodiversity in the city?

Green areas

Make an inventory of green areas in the city. How much of the city is green space? Count the number of species of trees, shrubs, other plants, insects, birds, mammals, reptiles etc.



Interview people

Interview people who move around in the area. Create a questionnaire that deals with how people live in their everyday lives. Some examples:

- How old are you?
- What is your occupation?
- Do you work in the city or the countryside?
- Name three things that are positive about the town. Name three things that are negative
- What do you think of the air quality
- What do you think about the noise level?
- What do you think of the outdoor lighting in the evenings?
- What is the city's biggest challenge? Where would you place it on a five-point scale? If you would like to change something about city what would it be?

Presentation of the results

Compile the results in charts, images and text. Determine how results will be presented: a report, an orally, a drama, etc.

Demonstrations

Purpose

To give a clear picture/understanding of an issue via hands-on (practical) experience.

What to do

A school decides to start a new theme that will last for a whole year – Greening the compound. They want to improve the schoolyard with a sustainability perspective. They will divide the school's students into working groups that will plan, build, buy things they will need and fix things they already have. All teachers and subjects will be involved in the project. It will start with a “kick-off” and end with an opening ceremony.

Students participate by;

- Making suggestions about what should be built/made
- Reflections on what they can do themselves, what must be bought and what can be recycled
- Being involved in everything done to increase their sense of responsibility and participation
- Seeing themselves as part of the environment both in and outside school

Workflow

1. Interview children

Some questions:

- Mark on a map where you usually hang out (create a simple sketch map)
- What do you do in the schoolyard?
- What do you think of the playground (on a 1-5 scale)?
- Do you and your school class use the schoolyard during normal lessons?
- What would you like to do about the schoolyard?



2. Teachers *compile the answers* to the interviews.

3. *Present the answers* to the students. Ask them to discuss and have opinions on the design of the playground.

4. *Divide students into groups of interest.*

Together with the teachers involved students are divided into groups that will change the school yard.

5. *Teacher discussions*

Questions:

- What challenges exist with regard to the playground?

- How can the schoolyard be changed so that problems with erosion can be prevented?
- How and where can groves of trees, plots of vegetables and fruits be created?
- How can a schoolyard be used as an educational resource?
- Would the school be able to invest in a water tank to collect rainwater – so-called water harvesting

6. Inauguration

After all work is finished, invite parents to the inauguration of the new playground.

Consider whether the school could invite neighbouring schools to show and inspire others who might be interested

Other demonstration examples:

- Kitchen garden
- Student plot
- Woodlot

Simulation

Simulations

Simulations consist of a common activity and one debriefing process with four stages: reflection, interpretation, generalization and application. These latter describe how the activity was perceived, what actually took place, what the purpose of the activity was and similarities you can see to the real world.

Activity

The activity in a simulation is a simplification of reality. Reality is complex. It needs to be simplified to be understandable. The activity doesn't need to specifically target your study object – on the contrary, it is usually an advantage if the activity is allegorical.

A simulation is an open activity – there are few rules. The participants are themselves but may also take on operational roles. Participants define and influence activities through their actions. It is reality that is simulated and not the roles.

The participants are autonomous – the leader should not interfere in and correct the exercise. Mistakes or unexpected developments in the simulation are desirable and something you can learn from.

Debriefing

Debriefing consists of four stages:

1. **Reflection:** Describes how the task was perceived and what actually took place. In this part there are no right or wrong activities either in terms of one's own experiences and feelings or how others are to be understood.
2. **Interpretation of what happened during the simulation:** Interpretation takes place both at an individual and shared level. How did I act as an individual? What were the effects?

3. **Generalization:** Similarities and differences with reality. First and foremost the participant's thoughts, interpretations, concepts and theories are the focus of discussion, even if these thoughts do not comply with the leader's intent with the simulation. At the end of this part the leader can explain his intentions with the exercise. It is during this stage that the leader relates to various concepts and theories in the study area.
4. **Application:** Action competence and a new understanding of reality can be attained by talking and discussing. The knowledge gained here can be applied in other areas and tested by experiments or in other exercises.

Simulation method

You can use the simulations in whatever way you want, at the beginning of your work to awaken interest, in the middle to vitalise the process, or at the end to assess what has been studied.

An example of a simulation

Footprints – simulation of sustainable development

Purpose

To show the resources the rich world uses compared to those used by the poor world and to demonstrate that understanding can lead to changes in relationships and behaviour.

Before you begin

Get hold of some tape, string or something similar to mark a start and finish line.

27 sheets of A3 paper (paper with footsteps on), see Resource 1. You may need more or fewer sheets depending on the number of participants in the simulation.

What to do

Round 1

Select a start line and a finish line in the room or outdoors. There must be at least five meters between the two lines.

Divide the participants into groups of 4-6 participants. The principle is that some groups are given few footsteps and others given many.

Distribute the sheets with the footsteps. In half of the groups two participants share a single sheet.

Read the instructions to the participants. Ask them if anything is unclear and if they have any questions.

Instructions to participants

You are now divided into teams – countries in the world. The goal is to get from one side of the room to the other. You should not touch the floor. You are only allowed to stand on the sheets that have been put down on the ground. If someone in the group accidentally touches the floor the whole team must start over again. Therefore it is particularly important that you help each other so that everyone gets to the other side.

Round 2

Participants now begin discussing how they will solve the problem of how to get from one line to the other.

Round 3 – debriefing

- What happened in the simulation?
- Let each team talk about their experiences, participants should wait to comment what others say
- How did you solve the problem that got you from one side of the room to the other?
- Was it hard to get the whole group from one line to the other?
- Did you help each other?
- Could you see what happened to the other teams?
- How did you feel when you were given the footsteps allotted to you?
- What were the goals of this simulation?
- Read the text about the ecological footprint. Ask the participants if they think differently now?

Round 4

- Tell the participants to repeat the exercise.
- Read the same instructions for the participants as you did in Round 1.
- Note if the participants solve the problem the same way as before or chose to act differently.

Round 5

- Allow the participants to sit in a ring.
- Ask why they chose to act in the same way or differently than before.
- How should we live in the world?
- How can we change the way we live now?

Comments

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Ecological footprint

In summer, when you walk on the beach, you notice where people have put their feet. Their footprints can be seen in the sand. Similarly, you can see how we humans live. We make ecological footprints. We buy and use many different things, TVs, DVDs, bottles, hoes, shovels, newspapers, food etc. In order to produce all these things, we need a variety of materials such as plastic, metal, paper, flour, meat etc. The things we make are all useful but they also have a significant impact on the environment.

We buy and use lots of things that come from far away and they have to get here in one way or another. Aircraft, trucks and boats need oil and gasoline and engines that use oil and gasoline emit exhaust fumes.

When you add all of this together, all the things you do, and the energy and raw materials that are needed, you leave tracks – Ecological Footprints. Every human being on earth makes a different-sized ecological footprint. Each person living in a rich country leaves a footprint that is as large as 6-7 football fields while the inhabitants of the poor world leave a footprint that is only as big as two football fields.

Africa has vast amounts of natural resources, yet its population often suffers first and most tragically when human demands on nature exceed its capacity for renewal. The countries of Africa have some of the lowest Ecological Footprints in the world per capita – in many cases too small to meet basic needs for food, shelter, health and sanitation. For the region to reduce poverty, hunger and disease, large segments of the population must have greater access to natural resources.

The Ecological Footprint measures humanity's demand on the biosphere by assessing the area of biologically productive land and sea required to provide the resources we use and that needed to absorb our waste. This area includes the cropland, grazing land, forest and fishing grounds required to produce the food, fibre and timber we consume and the productive land which on which we build our infrastructure. It also includes the area needed to absorb and store humanity's carbon dioxide emissions.

The average Ecological Footprint per person in Africa is 1.4 global hectares (gha), while the Global Average Footprint is 2.1 gha. Compared to the rest of the world, the average African's footprint is small, and for many it is too small to meet basic food, shelter, health and sanitation needs. In order to make vital quality of life improvements, large segments of Africa's population must have greater access to natural resources. Yet Africa's growing population and the world's escalating resource consumption makes this increasingly difficult.

FOOTPRINT FACTBOOK | AFRICA 2009

The Jigsaw model

Purpose

To develop teamwork and cooperative learning skills, and to develop depth of knowledge.

Background

The Jigsaw Model allows participants to be introduced to a subject and induces a high level of personal responsibility.

What to do

5. Divide the participants into groups of 4-5 members – the home teams. Appoint one participant from each group as the leader.
6. Every member in the home teams is assigned a particular topic – these are called experts. The topics have been created by the instructor. Example: The topic Fishing can be divided into 1) Species 2) Ecology 3) The Fishing Industry 4) Challenges 5) The Future.
7. Each expert in the group reads up on the subject and familiarises himself/herself with it. They all prepare a short presentation.
8. The experts from each home team are assembled together in mixed teams.
9. Each member teaches his or her expertise to the newly formed group. Encourage others in the group to ask questions.

Open space

Purpose

To form a group meeting that facilitates communication, collaboration and innovation.

Background

Open Space is an approach that can be used to form a group meeting or conference. Open Space is based on dialogue and participation and driven by the commitment and responsibility of the participants themselves. The participants create the agenda together and then are given the freedom to choose what they want to talk about, with whom and for how long. The meeting is thus self-organizing. Open Space can be used in meetings of 5 to 200 people. Open Space is suitable when working with development and project work, change management and when you are exchanging experiences or networking.

What to do

1. Instructor

The focus on the current case is presented and the instructor explains the “self-organizing” process known as “Open Space”. Open Space assumes that all necessary knowledge is available and that people with the requisite experience are present in the room.

2. Create an agenda

There is no agenda for the meeting. The participants should create the agenda themselves in the first 30-90 minutes of the session.

3. Questions

The group creates a working agenda. Ask what issues are to be discussed. Invite the group to come forward and write down their questions on pieces of paper. The issue may be one that someone thinks is important to discuss and the rest of the group may choose to participate in.

4. Select a group

Put all the questions on a special plate that is divided into three different fields or put the questions on the floor. The participants choose the question that is of most interest, form groups and sit down together for an hour or so to exchange experiences. If some groups become too small, they can merge with another group that is dealing with a connected issue.

5. Different roles

You may be able to choose different roles. Either you are a bumblebee – flitting between groups whenever you feel that you are unable to add anything more to the discussion. Or you are a butterfly – fluttering between groups and just listening quietly.

6. A summary

When the group has dealt with the questions it is time to make a summary of findings in a report sheet and then put it on a flip chart or a wall. The report sheet may have the following headings:

- Topic
- Summary of the discussion
- What should we do?



NATURE AS A CLASSROOM



The development from being a green-school to become an ESD-school

The greening process and learning

Students learn a lot when they are greening their school yard. While they build waste management facilities, vermi-composts, develop gardens with medicinal plants, cleaning areas from plastic, they certainly learn a lot of facts but also develop different abilities. They get the possibilities to start their personal development processes to evolve an individual action competence. In planning and building different kinds of greening facilities students e.g. learn to: communicate with peers, co-operate, participate and solve problems. These altogether positive personal changes will also hopefully result in a raise of their self esteem. In the school greening process teachers also become learners. The new tasks 'forced' them to communicate with peers and their students in new ways. The teachers get the opportunities to develop a more autonomous decision making and solve many technical and logistic problems during the practical work. Also school managers become learners. The principal needs to learn more about funding applications, planning and organization of new type of unusual school activities. The staff and students need maybe to be encouraged by the management when things are not working out in an expected way. Greening activities are certainly learning experiences for all stakeholders involved.



The green school becomes an ESD school

A whole school approach towards ESD requires that the development of the 'outer' activities in the school yard also turns into a development of more 'inner' school processes.

After the first focus upon the schoolyard and other outer activities e.g. cleaning plastics there is a need to make attempts to change the ordinary educational activities. A common theme for ESD schools is the focus on learners' development of abilities and skills. Working on real life issues and making different practical exercises facilitates students' development of abilities such as decision making, critical thinking, and democratic skills. They can participate in exercises that develop and clarify their own values, and they can also learn to identify and formulate different types of key-issues. Beside these important abilities, to be able to handle an increasingly complex world in an informed way, it is important to pay attention to students' personal development. The increase of self confidence, empowerment and ownership in problem solving is almost a prerequisite for being able to use the developed abilities in an informed way and unfold a developed action competence. The ability for an informed action could also be facilitated by personal characteristics e.g. be patient and listen to others opinions, to be able to feel empathy with other peoples' life situations, cultural understanding and also respect their way of thinking.



Reorganize for development in school and community

The focus on the learner needs to be facilitated by changes in the school organization, structure and classroom teaching. The organization needs to offer possibilities for teachers and students to meet each other outside the classroom in discussion about an overall school development. Regular meetings where the principal is joining are essential. This type of organization allows democratic discussion regarding school development in general to flourish. This could be issues such as discerning key issues and contribute to

the local community building or work with other types of real life issues. It could also be school issues as to make schedule adjustments temporarily or more regularly create opportunities for the education activities to be more subject integrated and thematic. It is vital that the student get possibilities to use their democratic rights to participate and take full responsibility for their own education. They need to experience an everyday type of democracy in the school and in the societal work where they soon will be the key stakeholders.

Nature as a book

Purpose

To establish a close relation with nature in an easy way.

What to do

Nature is like a huge, open book full of letters: Letters such as B as in Bush, S as in Stone, L as in Leaf. There also other letters spiced with fantasy and sensuality: L as in Laughing bird and S as in Silver shiny Stick.



All the letters are joined together to form words and sentences. Nature has its own alphabet and language. The more one reads the more one understands.

1. Surname subject

Pick an object in nature which begins with the same letter as your first name.

Then gather everyone in a circle. Start a presentation of the participants using their new surnames. Example: Sara Stone, Adam A-funny-shell.

2. Rebus

A rebus is a kind of word puzzle that uses pictures to represent words or parts of words. Make a rebus of objects from nature. Your rebus can be either completely free or very specific. Example: stone + unbroken stick + needle = SUN.

3. Alphabet

Try to create the entire alphabet with the help of objects from nature.

A - animal

B - blue flower

C - corn

etc.

Garden safari

Purpose

To establish a more profound relation with nature.

Before you begin

You need paper and pencil.

What to do

1. Map

Divide into groups. Each group selects an area in the garden or the school yard. Draw a map of the area. Observe signs of living things in the area. Indicate your findings on the map.

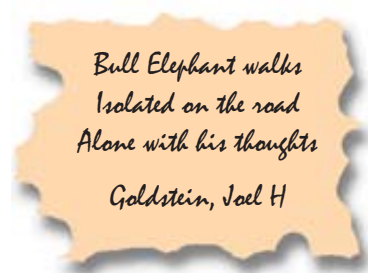
Report and discuss what you have seen.

2. Poem

Stroll slowly in your surroundings with an open mind. Try to be curious, sensitive and creative. Write a poem observing the following instructions:

- What have you observed?
- Name some objects you found.
- What feelings do they evoke?
- What can you smell?
- Try to describe different colours.
- Can you hear anything?
- Touch some leaves, branches etc. and describe your feelings.
- What are your reflections?
- Give your poem a name (a headline).

Read your poem to the rest of the group. Discuss in which subjects you can use this approach.



3. A poem called haiku

Write a kind of a poem called a haiku. It's a form of a Japanese poetry consisting of three lines with 5, 7 and 5 syllables. The last line should be a bit of a surprise.





My secret

Purpose

To train the ability to describe things in a comprehensive way.

What to do

1. An object

This is an outdoor activity. Pick a natural object that you like such as a beautiful stone. Hide it in your hand or behind your back.

2. Describe and guess

Walk in pairs. Describe your object without showing it. Use any five adjectives. Ask your companion: "Who am I?"

Describe the object in the same way you would describe yourself:

I'm hard and soft at the same time. If I fall on something hard you will notice a smell. I'm grey, but when I get wet I become dark grey. My edges are round but if I go to pieces I become sharp."



A poem that asks you...

Purpose

To stimulate curiosity, imagination and the desire to discover the surroundings in a joyful and poetic way.

What to do

The instructor reads a poem which invites the participants to look for the things named in it.

*Six things from the lake
Get something that is wet
and something that is tired,
something that rides on a wave
and something from a cave.
Get something new from the lake
and something that is weak.*

Here is another poem:

*Five things around you
Get three stones in a row
and something that is under a leaf
search for many colours
and striped things
catch finally something that creeps*

Try to find your own little poems!

When everybody has gathered objects that fit the poem, the instructor reads the poem again. For instance, when the word "wet" comes up, the participants show their wet objects.

Soil erosion

Purpose

To experience soil erosion and draw conclusions from it.

Before you begin

You will need two buckets of water and something to dig with.

What to do

Select two slopes. One with grass and one without grass. Get two buckets of water. Pour one bucket of water on the bare ground. Pour the other bucket on the ground covered with grass. Ask the participants to observe the speed the water is absorbed and the colour of the water. Make a comparison and draw conclusions.

You can also prepare this exercise by making a pond at the end of the slope. Then the participants can observe the amount of water that ends up in the pond. Reflect about what has happened to the rest of the water.

Reflect together

What has the water brought? What has happened to the ground? Can you give some examples from real life showing the same thing as in the exercise? How can we use the experiences from the exercise in real life?

The value of a tree

Purpose

To realize that we have different opinions on trees and that our knowledge about them varies.

What to do

Ask the participants to spread out into a forest and sit under a tree and reflect alone without looking at each other.

- Use all your senses to describe the tree.
- What kind of a tree is it?
- How old can it be?
- How can people use the tree – both children and adults?
- What animals are in some way connected to the tree? Think of insects, mammals, birds, etc.
- What is the importance of a tree in the forest? What does it mean the ecology?
- What emotions do you feel when you embrace the tree?
- Do you have any memory connected with this tree or a similar tree?

Divide into groups. Brainstorm and discuss in the groups the value of a tree. Categorize the different suggestions. Make a mind map.

In plenary: What different perspectives have you found?





Gallery walk

Purpose

To activate the participants.

Background

Gallery walk is a flexible discussion technique that makes participants more active.

What to do

1. The instructor prepares 3-5 discussion questions.
2. The questions are placed at various stations in the classroom or outdoors.
3. Divide the participants into groups of 3-4 members. One member should take notes.
4. When a group of participants gets to a station, they read what others have replied and then add new thoughts.
5. Exit Gallery walk with a summary and reflect together in the whole group.

Version for presentation

Gallery walk can also be used as an alternative way of making group work presentations. Instead of having all groups present the results of their group work in plenary, groups can be asked to present their results on flip charts. Those are displayed on the walls. All the groups walk around to read and discuss them. Blank sheets of papers can be put next to the flip charts for participants to write comments on.



THE SUSTAINABLE SOCIETY

What do you think?

The exercises in this chapter are about thinking for yourself, considering various issues and discussing them. If participants are unfamiliar with this approach you can start with this simple activity:

Purpose

To train yourself to take a stand, expose yourself to the reasoning of others and learn to respect other people's points of view.

Before you start

All participants pick up at least seven pebbles each.

1. What is the colour of your shirt/blouse/dress?

- Talk about the colours you identify e.g., blue, red and green. Paint or write the name of the colours on postcard-sized pieces of paper.
- Each participant puts a pebble on the colour of the item of clothing he/she is wearing.
- Create a chart that clearly illustrates the result.
- Which colour is the most common?
- Which colour is your favourite?



2. Which fruit do you think tastes best?

- Talk about various fruits, e.g. orange, mango, banana ...
- Write the names of each fruit on a postcard-sized piece of paper.
- Each participant puts a pebble on the fruit that he/she enjoys the most.
- Which fruit is the most popular?
- Which fruit is the most valuable to your family?

3. Which environment do you think is the best to live in?

- Choose between urban, rural, urban park, forest, savannah, maritime, river and field. Write the name of each environment on a postcard-sized piece of paper.
- Each participant puts a pebble on the appropriate environment.
- Which environment is the most popular?
- Ask some of the participants to justify their responses.

4. Which is your favourite sport/game/activity?

- Select the sports/games/activities that you can choose between.
- Write the name of each on a piece of paper, e.g., soccer, swimming, playing with the dog.
- Each participant puts a pebble on the selected sport/game/activity.

Complex exercises

5. What challenges exist in your village/community/city?

- Talk about different challenges. E.g., water shortages and lack of electricity.
- Write the names of some of the challenges on postcard-sized pieces of paper.
- Each participant puts a pebble on what he/she thinks is the biggest challenge to the neighbourhood.

6. How can we achieve a sustainable society?

- Talk about various measures such as investing in education, land reform and international agreements that will leverage a sustainable future.
- Each participant places a pebble on the solution he/she thinks is the most important factor needed to create a sustainable society. End the activity by discussing different ways to achieve a sustainable world.

Comments

These issues range from the impersonal and neutral, for example shirt colour, to more personalized and opinion-related questions. The answers to questions 1-2 are factual. The rest of the questions are more about opinions.

Walking with your food glasses on!

Purpose

To pay attention to objects in the neighbourhood associated with the consumption and production of food.

What to do

1. Walk in the neighbourhood

Put your “food glasses on”! Walk with your friends around the neighbourhood and collect impressions. What kinds of things remind you of food?

Perhaps you will see:

- Fields of corn or millet that can be used for making ugali
- An empty tin lying in the ditch that someone has carelessly thrown away
- A lorry transporting milk from a farm to the dairy
- Someone carrying shopping bags on his or her way home from the supermarket

- A cow that makes you think about a breakfast of bread, cheese and butter
- A lake or a fish
- A ship with bananas
- A cat hunting mice
- Animal droppings
- An orange tree
- A leaf that has been nibbled by a caterpillar

2. Report

Tell each other what you have seen and experienced.

3. Create food chains

Try to create a food chain, its path from cradle to grave. Example: ORANGE: core-tree-orange fruits-factory-juice-juice packaging-grocery store-kitchen-waste

4. Sustainable use

Discuss if the food chain is sustainable. How can it be changed for the better?

Human settlement – the built-up environment

Urbanisation is a fast-growing global trend. Today more than half of the world's population lives in cities. The UN predicts that by 2030 70% of all people on Earth will live in urban concentrations. It in the cities that the challenges posed by human ecological footprints (see page 73) will be most felt and thus the solutions are also to be found there. New ways of thinking and acting about food, mobility and housing are necessary. These activities are however just as relevant in small communities as in big cities. It is important for students to work actively with real challenges and solutions in the local community if they are to develop action competence.

Purpose

Through active participation help participants understand and involve themselves in the complex forces behind urban development.

What to do

People have developed structures that make living in their particular environment more economical and enjoyable. Divide your participants into groups of 4-6 people. Decide if all groups should do the same thing or whether they are to be allocated different tasks. Choose among the tasks shown below according to your goal. Indicate where in the community they are to carry out their investigations. It is not possible to do everything on one occasion. Make an implementation plan and adapt the tasks accordingly.



1. Visit your community in person to observe and record how the physical environment has been planned and developed. Draw a preliminary map.
2. Visit a Civic Centre, ask for plans and study the structure of the neighbourhood.
3. Plan additional field trips and surveys. Study the present situation, investigate challenges and possible solutions. There may be some overlapping between areas that must be taken into consideration:
 - a. Environment – study plants, animals and sources of pollution.
 - b. Mapping – refine the preliminary map.
 - c. Transport and communication – how do people usually move around and communicate? Make a survey of transportation and means of communications, e.g., bicycles, trucks, cars, taxis, motorcycles, mobile phones, radio, TV, Internet, fax and E-mail.
 - d. Housing – how do people live? Investigate types of buildings and the materials used. Are building practices and repairs guided by sustainability?
 - e. Energy – investigate the flow of energy in, around and out of your community. Investigate energy supply and the use of technology. Do the same for your school.
 - f. Resources – investigate the flow of resources such as food, water and waste in, around and out of your community. How were they produced, consumed and where do they end up? Do the same for your school.
 - g. Trade and consumption – investigate the consumption patterns of some community/city members. How does trade work? Investigate trade patterns by studying markets, retailers etc.
 - h. Community services – investigate community services that have been set up to meet people's needs – waste management, food, utilities, fuel and resting places.
 - i. Social institutions and identity – investigate the social components of neighbourhoods in your community (a neighbourhood is a local area whose residents are generally aware of its existence, know their neighbours and share social institutions which are unique to them – churches, clubs etc).
 - j. Growth zones – locate current and future growth zones, and areas which have been restored.
 - k. Laws - investigate laws and regulations which protect natural and residential areas from intrusion by industry, roads etc.
 - l. Health and sanitation – investigate how issues of health and sanitation are dealt with in the community. Study access to health care, toilets, clean water, etc.
 - m. Local history – try to find out how your community has grown and changed (interview elders).
 - n. Culture and pleasure – investigate the range of activities available for culture, leisure, learning, exploration and enjoyment.
 - o. Future development – interview local politicians, decision-makers and local residents about their thoughts on current challenges and possibilities, and their visions for the future.

Groups present and discuss their conclusions. Find the connections between different areas and create a common assessment of the community. Then, most importantly, suggest changes that can be made in the city or community to develop it in a more sustainable direction. Summarize and compile the results in a common report. Present your findings in a public forum or for a local politician and other key persons.

Workshop on concrete ideas for development

Purpose

To find new ideas for development and organize them in order of priority.

Role plays

Policy issues

Pre schools

???

Before you begin

Ensure that there are four sheets of papers for each person.

What to do

This exercise is about developing the village, school or some other institution.

1. Write

Divide a sheet of paper into four. Each participant provides four concrete suggestions that might be developed further. Write each suggestion on one of these pieces of paper.

2. Read the suggestions aloud

Form groups of approximately 4 – 8 participants. The participants in each group place their suggestions upside-down in the middle of the work sheet (look at the illustration below). Don't put them in any particular order.

One participant starts by reading the first suggestion. He/she suggests where to place it in the order of priority.

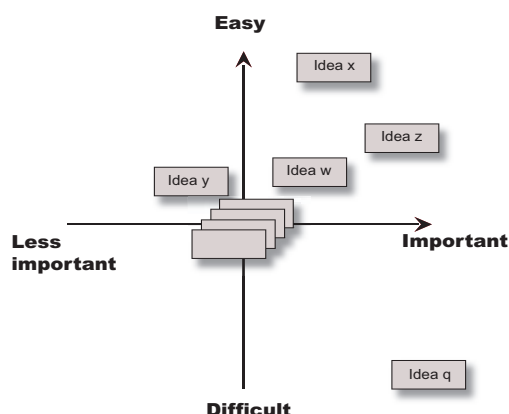
3. Discussion

The next participant can suggest that this idea should be moved if he/she regards it as more or less important, or more or less easy to put into practice. The group discusses and tries to find consensus.

4. Report suggestions

Start with the idea in each group that has been ranked as the most important and easiest to get to work. Then move on to the next group. Present one idea at a time. The idea is discussed by the members of all the groups together. Then it will be the turn of the next group to present the suggestion they have ranked first.

This exercise results in a collection of ideas for development, regarded by the group as important and easy to realize. The next step is to develop work plans for putting these ideas into practice.



Writing an article

Headline

Make this as catchy as possible because your reader will read it first before deciding whether to read the rest of the article. The title should be attractive, witty, true and/or be designed as an assertion.

Subheading

A second line that provides additional information and incites curiosity.

Preamble

The preamble introduces the main body of the text and makes people to want to read more. It answers the questions: When, where, who, how and why.

Body copy

The body copy is the main text in the article. Write about most recent and most important things first. Leave the least important to last.

Byline

The byline gives the journalist's name and may include a photo.

Letter to a newspaper

Purpose

To help participants formulate written arguments and clarify these arguments further in their own minds and to train the skills required to engage in public debate in the media.

What to do

Ask the students to write well-formulated articles backed up with strong arguments with the intention of sending them to their local newspaper in an attempt to influence local developments. In the box you will find suggestions for the structure of such an article that can be given to the participants.

Below you will find an example of a suitable topic. It is a good idea to use local examples and identify suitable people to send the memo(s) or letters to. The examples given below are also suitable for panel debates.

Tourism development

Tourism development in the coastal areas of Lake Victoria is expected to bring economic advantages to the region. In order to cope with the anticipated number of tourists, numerous recreation centres and marinas have been planned or have already been constructed in shallow water areas. It is likely that these will have considerable impact on coastal ecosystems (e.g., on fish breeding and nursery areas) and may pose a serious threat to landscapes and the biodiversity of the respective areas.

To work with innovations

Purpose

To develop the ability to create innovative solutions to small and big problems that hinder progress towards a sustainable future.

Background

We are born with a creative ability in the same way as we are born with more or less developed ball skills. However this ability can be trained and developed further. In the following we start off with simple exercises to warm up our creative ability and raise it to a higher level. This means that our capacity for innovation will be increased.

Creativity is the ability to invent something new. E.g., taking two things that already exist and making something completely new by combining them. This means thinking in new ways. Your creativity is based on your skills, experience and the motivation that you feel for your mission. You also need a great deal of courage to think outside the box.

The word innovation means renewal. An innovation is something that people actually use. An innovation may mean that you use an existing object in a radically new way or manufacture an existing product in a new way. The goal of an innovation process is to create positive change, to do something better (Wikipedia).

An innovation can also be social, a new way of thinking, cooperating, teaching, etc.

To start a small scale business is not a quick fix, it's a process. You need ideas, money and other equipment. But you can always start to think from different perspectives and try to see things in everyday life in new ways.

How to get an idea and develop it is a matter of several things:

- to be brave
- to be smart
- to have fun
- to be open minded
- to be curious
- to see things from different perspectives
- to think outside the box

Being creative and designing innovations can be summarized as follows: Dare to think of new ways of doing things!

Innovations often have their roots in everyday problems. Sometimes these are something negative. E.g., a shortage of wood or the desire to increase the value of something. An inspiring example of this is a product called Solvatten. Undeveloped countries have lots of problems with diarrhoea. It's often necessary to walk a long way to fetch water. This problem has led to an innovative solution. The Solar Safe Water System is a portable container that uses energy from the sun to treat and heat water. Access to safe water is an enormous challenge in most African countries. The World Health Organization estimates that lack of access to safe drinking water accounts for as many as 1.8 million of worldwide annual fatalities due to diarrhoea – of which 90 percent are children under the age of five. A large proportion of these deaths occur in Africa.

What to do

Some creative exercises performed in groups of 3-5 participants:

1. Heating exercises

a) Three things

Choose five people, five items and five places that you have a relationship with and write them on pieces of paper and divide them into three separate piles: People, things and places. Take one item from each pile, e.g., Obama – banana – Lake Victoria. Write a short story based on the three words, e.g., "Obama, the U.S. President has a relative in Kenya who grows bananas close to Lake Victoria".

b) Small everyday problems

Write down some things you can find in your surroundings, e.g., rock, desk, chair, pen. Choose one of the things. What problems are associated with it? How can you solve them? List different solutions. Evaluate them. Pick out the best solution.

c) Discover and invent

Look for some natural objects. They can be quite varied, e.g., a crooked stick, a multi-coloured stone and a leaf lobed like a hand. Discover the various possibilities and qualities inherent in things. Put together natural objects in an innovative way. Create a charming, wonderful invention of any kind! What would you call it?

d) Body Machine

Gather the group and create a fantasy machine using the human body, for example, one participant stands up and lifts his/her leg up and down. Another stands on his/her hands and a third waves a hand, etc. What would you call this machine?

2. Examples of innovations

The first bicycle ever had a frame and a very large front wheel and a very small rear one. It was called a penny-farthing! Today bicycles are made differently.

- Give more examples of everyday things which have changed like the bicycle.
- Study a few examples of innovations such as energy saving stoves.
- Study the "Low Cost Ways of Treating Drinking Water" poster. What is innovative about the proposals? Do you think there are other clever ways to treat water simply and inexpensively that are not shown on the poster? (Resource 10)



3. Create an innovation

Identify one problem that you run into every day. For instance you have a long way to go to get to the store or your school, there are lots of droughts or your shoes are always falling to pieces. Choose the issues you are most concerned about. How can you solve the problem? Conduct a brainstorming session:

- Identify a problem.
- Conduct a brain storming session.
- Pick out some positive and workable ideas. Find a solution to the problem.
- Present the solution to the other participants. Ask for comments.

Criteria for sustainable production

Subjects

Art, Natural Science, Social Science, Language.

Purpose

Students/participants learn about important eco-labelling and its purposes.

Material

Information about different labelling systems and their principles and criteria.

What to do

1. Introduce the concept of sustainable production to the class/group. In the UN meeting in Johannesburg 2002, one of the key challenges identified for the future was to discover more sustainable production and consumption patterns. How can we ensure that production is made sustainable? Certification schemes and eco-labelling is one way.
2. If possible select types of products/services which have been identified locally/regionally as having the potential to generate income from sustainable alternatives. In the case of Kalimantan for example, this might be agriculture, rubber, rattan, eco-tourism and fishing. Group them into product areas.
3. Tasks for group work:
 - a. Write down at least 5 criteria/principles that might contribute to a sustainable production of your product/service. These may be social, environmental or economical.
 - b. When each group has agreed upon 5 criteria/principles for their respective products, distribute fact sheets and information material about different labelling systems, e.g., FSC, RSPO, organic farming, etc. Ask the groups to compare their own proposals with current labelling systems and to see if there are any other criteria/principles they would like to add to their list.
 - c. Hand out flip charts and ask the groups to design a suitable logo for their product. Add information on the criteria/principles you have identified.

4. The groups display their flip chart presentations on the wall.
5. Pin a blank sheet of A4 paper at each side of the flip charts. The left sheet is given the headline: Good! The right hand sheet is given the headline: Suggestions for improvements.
6. All participants walk around the room and read the flip chart presentations and they all write one comment each on each sheet of blank paper.

Developing the exercise further

The group work could be extended as follows:

Students are given different roles in the group, for example, medicinal plant scientist, conservation scientist specialising in plants, mammals, birds, amphibians etc, a community leader, local tourist guide, forest owner, designer, local priest or other person needed in the project. The students can apply for the roles/tasks as if they were applying for a job.

Each student works out the most important aspects of their character. They utilize different materials, books and carry out activities that will enable them to obtain important information that can be used by the project group. This information can be compiled in small or large reports, wallpaper magazines/posters, models etc., depending on the time allotted and the level of ambition set.

Each student makes their own list of demands that his/her character wants to add to the development of criteria for the label. The project group meets and all the experts present their results and demands orally. The group discusses and compromises until they reach an agreement on a label with a logo and a list of criteria and principles.

Links

Useful links concerning FSC and Principles and Criteria for Sustainable Palm Oil Production:

www.fsc.org/1093.html

www.rspo.org/?q=page/513

Some rules:

- Criticism is forbidden when brainstorming
- Encourage spontaneity, and originality
- All ideas are good ideas
- The quantity of ideas is important
- Encourage the participants to dare make mistakes
- Participants develop each others ideas
- Number of participants: 5-8
- Everyone should be allowed to express themselves
- Write ideas on a large sheet of paper or something similar



LOCALLY RELEVANT THEMES



LORET - Local Relevant Themes

Purpose

To connect the school with the real world around it and to encourage it to focus on issues important in the local community such as questions of water and agriculture.

Background

One of the important aspects of Education for Sustainable Development is to connect school work with reality outside the school. Connecting school work to the local community, the needs of the country and the whole planet. If education is to support development it must be based upon the society we are a part of. Key issues for development must be identified. These issues cannot be conveniently divided up into isolated sectors that target history, biology, language etc., separately. In reality all school subjects are connected. To understand them all, a holistic approach is essential. All work in school must integrate the knowledge and skills that are found in the study of different subjects.

What to do

1. Brainstorm and mobilise

Identify and mobilise teachers at the school who are willing to work together on a particular theme. Brainstorm together about important questions that touch the local community.

2. Prioritise

Choose a single issue that is currently the most important to work with.

3. What should be taught?

Group work: What should you teach to facilitate an understanding of the selected issue, e.g., soil erosion? You might penetrate different soil types, ecology, water management, economic topics, etc. Monitor the important social and cultural issues that should be covered when working with the theme. Treat your students as potential farmers,

workers, businessmen, social workers etc., in your community. What knowledge, skills and values do they need to develop as students in your school? Be as specific as possible.



4. Workplan

Make a mindmap of your theme.

Construct headlines and sort your aspects under subtitle headlines.

Determine which subjects are needed to cover the different aspects. Mark this in your mindmap using different colours for different subjects.

You will probably find that several subjects are needed to cover your theme. How will you integrate these subjects? How will you organize your work?

Now you have developed a framework for your theme!

5. Organising the work

- Create an overview of the plan
- Try to estimate the time needed
- Document all achievements as your work proceeds
- Assign a secretary

6. A model for developing a locally relevant theme

It's a good idea to make a plan with the following headlines and content:

- The theme
- A summary – an overview of the plan
- Methods – pedagogical methods and exercises
- Organisation – how can you collaborate on different subjects in the school
- Goals – a description of goals, skills, values etc. (link to the curriculum)
- Results – what results are expected?
- Information – the literature, resource materials etc., of importance for the theme

See also the six cornerstones on page 6 for ideas on how to develop exercises and a thematic approach in an ESD way.

Water – a limited resource

This is an example of a Locally Relevant Themes (LORET) – plan. Here you will find examples for lessons and activities connected with this theme. The plan is not complete but it illustrates how you might work.

A summary

This theme spans four weeks of integrated studies in several subjects in grade 7, and focuses on the topic of water. Teaching during individual lessons in the theme is coordinated to follow a logical order. Two days are used for study visits and the final step is a thematic “Water Day”.

The plan is built upon the Kenyan National Curricula.

Organisation

Teaching is concentrated to a period of four weeks. Before starting teachers meet to plan all connected activities.

Teachers of individual subjects make a plan detailing their lessons during these four weeks. These plans will be correlated between the subjects to achieve maximum integration. The teachers’ team assigns the teachers responsible for crosscutting activities that break the ordinary schedule. In order to be able to work more freely to meet the requirements of the theme teachers switch lessons with each other.

During the period covered by the theme period teachers meet once a week to follow up on work carried out.

How to start

The starting activity takes approximately 3 lessons. All students collect words related to water. The question is: *What do you know about water?* Answers should not be more than one word each. Each word is written on a small piece of paper and all the words are collected on a blackboard.

The participants are asked to arrange the words into groups according to context. Give every group of words a headline.

The class is divided into an equal number of groups and each group is given one of the identified headlines with its corresponding words. The group is asked to prepare and hold a short lesson for the rest of the class summarising knowledge about water under that headline.

During the following lesson students collect sentences that answer the question: *What do you want to know about water?*

These sentences are arranged on the blackboard in the same way as words were arranged during the previous lesson. These “mindmaps” of words and questions form a baseline for the work.

Expected results

Students are made aware of the knowledge they already have and engage in the process of learning by identifying the questions that need to be answered.

Goals and content in relation to the National Syllabus

Issues to be dealt with in different subjects are based upon the national syllabus and are listed below:

Social studies

Identify the main physical features of Africa, your country and your village. Describe mountain ranges, rivers and lakes (Syllabus Stand Seven 1.1 and 1.2).

Knowledge about factors that influence the climate and knowledge about climatic regions of Africa, your country and your region. The local climate in your area. Impact of climate change on human activities (Syllabus Stand Seven 1.3).

Characteristics of vegetation in your area in relation to climatic conditions and access to water (Syllabus Stand Seven 1.4).

Distribution of population in Africa and in your region in relation to access to water (Syllabus Stand Seven 2.1).

Factors influencing agricultural production of various crops and forest production in your region. New developments taking place. Special focus upon dependence of water.

State factors that cause conflicts and ways of resolving disputes (Syllabus Stand Seven 8.1). Etc., related to fishing, trade, tourism, political systems, citizenship, law, peace and reconciliation.

Mathematics

xxx

Science

xxx

Kiswahili

English

Christian Religious Education

Islamic Religious Education

Some thematic activities

A. Role-play

Two countries sharing a river

Two countries share a river that does not have enough water to meet the needs of the populations of both countries. It has also become polluted over the years. The upstream country is in conflict with the downstream country over the use of this common water resource. Conduct a meeting between representatives of the two countries.

Upstream country

- Representatives of Ministry of Agriculture
- Representatives of Ministry of Health
- Representatives of Ministry of Fishery
- Representatives of Ministry of Tourism
- Representatives of Ministry of Law

Downstream country

- Representatives of Ministry of Agriculture
- Representatives of Ministry of Health
- Representatives of Ministry of Fishery
- Representatives of Ministry of Tourism
- Representatives of Ministry of Law

Lesson 1

Divide the students into groups and ask them to prepare this meeting.

Lesson 2

Conducting the meeting. A chairman from UN leads the meeting as it is expected to be conducted at a high international level.

Students usually get quite engaged in acting the roles they have been given. They might argue strongly for opinions they do not personally hold. Before ending the lesson everybody should be given the opportunity to state their own personal opinion.

Lesson 3

1. Students make individual lists of all possible solutions no matter whether they are good or bad.
2. Students form small groups and compare their lists and classify possible solutions according to the following scheme.
 - a. Loose-Win. One country is the loser and one is the winner.
 - b. Win-Win. Both countries benefit from the solution.
3. Reports from the whole class.

Lesson 4

Identify international and national conflicts concerning the use of water. The teacher brings up questions asked by students during the role-play and tries to support students by enlightening them.

Expected outcome

Students learn to understand the complexity of conflicts caused by sharing a common resource. Students are trained in problem solving.

B. Study tour and development of a creek basin management plan

During one day students will follow the village creek up into the hills from whence it comes. They document all observed conditions in and around the creek. They also document all activities along the creek that depend upon and affect the creek. During the following lessons in Social studies and Science they develop a proposal for a “creek basin management plan” suggesting actions that need to be taken to restore the water quality of the creek. They also develop proposals for rules that need to be followed concerning use of the creek and human activities in connecting areas. The “management plan” is presented to the inhabitants of one of the small villages along the creek at a village meeting.

C. Water day

During this day all lessons are dedicated to this theme. The day is started by setting up an exhibition of pictures illustrating our dependence on water. The exhibition is set up in the dining hall so that students from all classes can see it.

Next follows a poetry competition on the water theme. Students read their best water poems.

Then essays are written during language lessons. A jury of students in charge of the assessment of essays reads the best essays on the following topics:

1. The blue planet (Written in English)
2. The journey of the water molecule in the eco-cycles of nature. (Written in Kiswahili)

A representative of the community administration holds a lesson on the quality of drinking water in his/her village. He/she reveals the result of a recently conducted survey of chemical constituents in water in private wells in the village. He/she instructs participants how to handle wells safely. He/she also informs about plans for a future system of piped water.

All students go swimming in the nearby lake.

Lunch is eaten on the shore of the lake. It consists of fish soup made of fish from the lake and vegetables from the school garden.

The afternoon is spent visiting fishermen and their families in the nearby fishing village. Students are asked to focus upon changes observed in the lake and the visions of fishermen for a desirable and sustainable future. What measures need to be taken? How can we contribute as individuals? Students write newspaper articles that are sent to local newspapers.





WATER TOWARDS SUSTAINABILITY

Introduction

The long awaited drop of water falling on your cheek, melt water from Kilimanjaro's glaciers and a splash from a hunting Nile perch, but also screaming thirst in northern Kenya, drought in Tanzania, dead animals at a watering hole and long walks to get drinking water – these are some of the different faces of water. The way in which we use this resource is vital today and a burning issue for the future.

We use fresh water in many ways, to drink and prepare food, to irrigate crops, generate electricity and much more. A third of the world's population lacks fresh water and a large number of plant and animal species are threatened with extinction because of the way we use water. This is now exacerbated by climate change with melting glaciers and rising sea levels.

A poem

*Drink a glass of water
and you wash your
throat with the whole
world!*

*Perhaps has this water
splashed in the stomach
of a lion, or have fallen
as tears down the cheek
of Buddha. Perhaps
has the water hung as
brilliant drops in the
great woods of fern 40
millions ago.*

*However, drink a glass
of water and you'll find
a lot of fascination.*

Your need for water

We start off our lives in a water-filled uterus and are born onto a water planet. Every day we need 2-3 litres of freshwater to survive. In many countries you can just turn on a tap to fill a glass with excellent drinking water. In East Africa you might have to walk for miles to fetch your daily water.

For better or worse water is a good solvent. A small drop of a toxic substance can pollute thousands of litres of water.

We all live in catchment areas – river basins. A catchment area is the land, including lakes, which is dewatered through the same waterways. The area is bounded by a watershed that separates it from other river basins. All precipitation that falls within the basin flows into the sea through a particular waterway.

The things I do in the upstream catchment area that I inhabit, affect the lives of the people downstream. Whatever happens in Kampala influences life in Lake Victoria many kilometres distant.

All the water on Earth reduced to a litre

Purpose

To create a model of Earth's water resources and understand how much salt and fresh water there is on Earth. Before you begin

You will need:

- A jug that will hold 1 litre
- A decilitre measure
- A little salt



The Earth's Water

The Earth is truly a water planet: 70% of its surface area is water and 30% is land. There are a total of 1400 million cubic meters of water on Earth of which some 35 million cubic meters are fresh water. If you could fit all the water from Lake Victoria, the Nile, the Pacific, the glaciers, etc ... into a litre jug then you will have created a model – all of Earth's water reduced to one litre.

How to do

You are going to create a model of the Earth's total water resources.

1. the jug with one litre of water
2. Pour off 2.5%, i.e., 1 / 4 dl or 2.5 cl in a decilitre measure. Pour the salt into the jug. What have you created? A model that shows the distribution of salt and fresh water on Earth.
3. Take the decilitre measure that contains 1 / 4 cup water and discard 2 / 3. This is water that is bound up in glaciers.
4. The water that is left is the available water for humans and animals. Pour the rest away now, but save a single drop of water. The water that you have discarded is the groundwater. Some of this is deep down in the ground and cannot be easily used by people and animals.
5. The single drop of water that is left is the fresh water we can see in lakes, rivers, streams and rivers. This water can be used by plants, animals and humans directly.
6. Take this droplet and put it on your cheek. What does this make you think of? Does the availability of fresh water differ between countries?

Water ceremony

Purpose

Kick start a larger thematic work and focus on water as a global issue.

Before you begin

- You will need
- A big bowl
- One cup for each participant
- Water, 2 litres

What to do

- Gather the participants in a ring.
- Place a bowl of water in the middle.
- Ask the participants to look at the water and to think of three words to describe it. Encourage them to make up their own words.
- Everyone is given a paper with the word water in different languages. You can also ask the participants if they know the word water in any other language.
- Everyone is given a cup of water to hold in their hand.
- The participants walk up to the bowl one at a time, pour the water from their cup into the bowl and say a water-word and a word that describes water for example "aqua – refreshing".

Some examples

Wasser (German), eau (French), acqua (Italian), woda (Polish), Maji (Swahili), Pula (Botswana), mizu, (Japanese), Siu (Chinese), pana (Hindi), air (Indonesia)

Chart of thoughts

Purpose

To identify pre-existing knowledge and experiences in the group. It may be important to bring these out into the open as resources that can be utilised by the whole group.

To identify pre-existing attitudes and emotions in the group that may cause the instructor to re-evaluate the best way to lead the group.

What to do

To discover what the participants think and feel about the issue you might simply ask them: What does water mean to you?

Let everybody have an opportunity to talk. Write down everything they say on a flip-chart or board so that all participants will be able to see what they have said. If you are used to working in this way you might want to simultaneously categorise the things they say under separate headings. If not just let them talk freely, and afterwards help them to put what they have said in some form of order. The results may serve as a platform for creating topics and questions later on. Save the chart so that you can compare it with ones created in previous sessions. What have the participants learnt?

Invisible water

A small exercise that can be done on the way to outdoor exercises:

What to do

1. Sometimes water is visible. You can see water in a lake or when it rains. Now put on your “water glasses” and try to find three items which contain invisible water. Search at three levels – low, medium and high.
2. Gather in a ring at the end of your walk and tell each other about what you have found.

Comment

The water it takes to produce 1 kilo of some of the foods we eat has been calculated: Potatoes 500 litres, milk 900 litres, wheat 1 200 litres, rice 2 700 litres, beef 16 000 litres, cotton 7 000-29 000 litres. This water is invisible, so-called virtual water.

The water cycle

Purpose

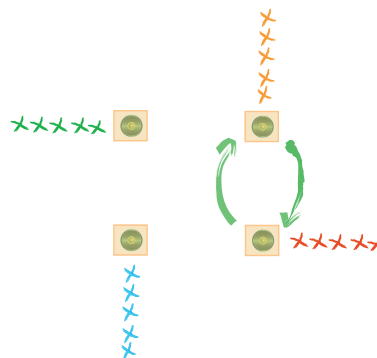
To describe the water cycle.

You will need

4 plastic containers

4 plastic bottles

4 cups and some water



What to do

The different containers symbolise parts of the water cycle for example rain, river, lake and sea.

1. Put the four plastic containers in each corner of a square (15 x 15 meters).
2. Put a bottle containing 3 decilitres of water inside each container. Place a cup next to the container.
3. Divide the participants into four teams and place them according to figure XX
4. The first member of each team runs to a water source (the next team's container), pours some water from the bottle into the cup, runs back with it and adds it to their own team bottle.
5. The activity should continue until stopped by the leader.
6. Note how much water each team has ended up with. Relate this to natural events such as droughts, floods, high and low tides etc. Some areas may have little water while others are flooded. The total amount of water on earth is constant.

Comment

There is a simpler version of this activity. Everyone stands in a ring. Everyone has a cup in their hands. One person has a decilitre of water in his/her cup and pours this water into his/her neighbour's cup. This is repeated around the circle. What has happened to the amount of water after one turn around the circle? What happens with the water circle in reality? Does the water disappear? We all live in a hydrological circle!

Life in water

Purpose

Discover diversity in a lake or a river and find out more about various creatures by getting close to them.

Before you begin

You will need small plastic cups or plastic bottles and a strainer.

What to do

Visit a lake, river pond etc., that contains lots of aquatic life (fish, insects etc.). Ask the participants where such a place can be found.

If you were a small fish, snail or something else living in the water, where exactly would you most like to be? By the shore, out in deep water, behind a stone...?

In this exercise you should keep a look out for living things in the water. Look under rocks and among plants. Use a strainer and move it gently along the bottom. Keep the creatures you have caught in recycled plastic bottles. Observe and discover.

Choose one creature and study it carefully. How does it move? What do you think it eats? Who eats it? What other questions do you have about the creature? Study it and try if you can find out the answers.

Exit the task by doing an illustration. Create a magnified image of the creature you have found using objects from nature such as sticks, leaves and stones. Invent a fanciful name for the creature, a name that aptly describes the creatures' appearance and behaviour. For example, a yellow beetle could be given the name "Jumping Gold Beetle".

Consider: Is the creature threatened in any way?



Lemna minor tells you a story

Purpose

Using a scientific and cheap method to ascertain the quality of fresh water.

Background

All green plants require small quantities of nitrogen and phosphorus. The more of these substances there are in the soil and water, the more and larger plants you will get. Of course you also need sunlight if things are to grow.

Eutrophication is a phenomenon that occurs when water contains too many nutrients, especially nitrogen and phosphorus. These substances determine how well plants grow in the water. You can judge the nutrient content of water by observing how well it supports plant growth. Low nutrient content will result in smaller and fewer plants whereas high nutrient content will result in larger and more abundant plants. You can see this by just observing plants growing in water and along the shore.

Before you begin

You will need four small plastic cups.

What to do

When you want to compare different water resources or water collected at different seasons you can use Lemna minor (duckweed) as a bio indicator in an indoor experiment. The species is common in fresh water ponds all over the world and the plants are easy to handle in laboratory experiments.

1. Fill two cups with control water and two cups with the water to be tested. The water level should be about 2-3 centimetres high.
2. Pick 80 leaves of Lemna minor.
3. Let them grow at room temperature in the highest possible light intensity for at least 2 days.
4. Measurement: Observe the plants. Do they have large or small leaves, has their colour changed, do they have yellow spots, what does the root look like? Count the numbers of leaves in all cups. Calculate the average for the control and for the test water. Compare the result.

PhD Britta Eklund, Research scientist at the Institution of Environmental Science, Stockholm University



A national park in the Lake Victoria catchment area

Purpose

To understand the different aspects of a conservation project.

What to do

The participation starts by addressing the group:

“Dear representatives of the local community, people living in the area, conservationists/environmentalists, representatives of tourist companies, farmers, fishermen and representatives of gold mining companies.

I have come to you as a representative of the East African Community to ask you for your opinions concerning a proposal to develop a national park in this part of the country. The area consists of a variety of forests and plains with a rich biodiversity. Here we can find a great variety of big mammals, birds and rare plants. The area is the source for several rivers that supply people with water all along their courses. The soil is rich and has great potential as farm land. There are several thousand people living in the area. These are mainly forest dwellers that make a living keeping cattle. Gold has been found in the central part of the area, but has not been exploited as yet.

There is a proposal to establish a park in the area but no decision has yet been taken. To help us make a wise decision the East African Community needs your opinions and reflections about the need for a park and its possible impact. It is just as important to focus upon advantages as on negative consequences.

In a moment we will ask you for your opinions but right now I want you to start by sitting in your respective groups and preparing yourselves for the meeting.”

Groups represented at the meeting:

- Local community
- People living in the area
- Conversationalists/ environmentalists
- Tourist companies
- Farmers
- Gold mining company

What to do

1. The instructor is the facilitator and presents the role-play.
2. The different groups prepare the coming meeting.
3. The groups present their opinions.
4. Discussion.
5. When the role play has ended everybody is free to express their own personal opinions.

Lake Victoria news

Purpose

To induce participants/students to find out facts and to learn more about the Lake Victoria catchment in an interactive way.



Before you begin

Make a simple "television" with the help of a cardboard box.

What to do

1. Prepare a broadcast

The participants are asked to plan a short local TV program on the Lake Victoria catchment in groups of three. You can introduce this session by acting as a well-known local TV programme leader, asking the students to help him/her with this TV production. Each group prepares three minutes of broadcasting on a specific topic and tries to do this in a way the viewers will find interesting. The format may be a news bulletin delivered by a reporter, interviews from stakeholders in the field etc.

2. Topics

Ask the participants to choose among the following topics:

- Land use management
- Oil palm plantation
- Timber plantation
- Protected areas
- Illegal logging
- Forest fires
- The biodiversity of the Lake Victoria catchment
- People living in the region
- Forestry
- Erosion
- Water management
- Fishery
- Health and sanitation
- The future of the region
- A tourist advertisement

Provide the participants with information material such as pictures, maps, films, brochures, etc.

3. Group work

The groups research information, prepare a manuscript, rehearse lines, prepare props and create a signature image and jingle.

4. Broadcasting

Time for the broadcast: The teacher can act as programme leader introducing topics, or set up a list of topics in order on the black board/white board so that the groups will know when it is their turn. The group that is to broadcast sits by the front desk and plays their section of the programme for the rest of the class through the cardboard TV box. They pass the box quickly between themselves to simulate rapid cuts (MTV style).

Further suggestions; You might suggest that the students produce more varied TV programmes such as commercials, music videos, tips on literature, soap operas, short documentaries, weather forecasts etc.



A model of a catchment area

Purpose

To highlight the fact we all live in a catchment area and have an impact on it. These impacts are caused by everything from the way people wash and the footprints left by large agricultural enterprises. To develop decision-making skills and planning in a sustainable perspective.

What to do

Make an outdoor model of a catchment area.

1. Divide the participants into smaller groups.
2. Ask each group to choose an area 1-3 m² large. Use natural material (sticks, cones, stones etc.) and build a catchment area containing:
 - A small lake
 - Lake Victoria
 - Forests
 - A river

Then decide where to put:

- A water power station
- A large-scale farm
- Some small-scale farms
- Villages
- Water wells for drinking water
- A petrol station



Be good planners and take the character of the catchment into consideration. What do you put where and why?

3. A water power station is planned in your area (or a new major plantation, or whatever kind of large-scale impact you want to challenge the students with). What kind of consequences will this activity have locally, for the catchment and over time? Discuss and find a common view within your group about what you think of these plans and how you should tackle the situation.
4. Either the whole group walks around and shares the results from all groups or groups are matched into pairs and are invited to each other's catchments to see, listen and share thoughts.

Use of water in a sustainable way

Purpose

To understand the significance of land use in relation with water.

Background

Water is the basis of life. We need water for cooking, drinking, hygiene, food production and more. Everything we do affects water. Land use, pollution, dams, overfishing, etc. The world population is growing. How can we leverage sustainable water use?

What to do

Choose a stream nearby. Bring a map and highlight interesting things such as dams, industries, housing, agriculture and other land uses along the watercourse.

Plan an investigation into a designated area along the river. Study the interplay between land use, resource use, water quality and ecology. Each participant must have clear idea about the way in which the investigation should be implemented.

Plan a field trip. Contact a local industry or equivalent for a visit. Do the same for a farmer. Consider the objective of the study visits. Create a list of questions about water use and the impact on the local water ecosystem.

Sample questions: Why has the industry been established by the river? What does the water do for the industry? What impact has the industry on water ecosystems and water quality? Has the industry been involved in serious toxic spills? Farmers may have questions about farming practices and how they use or affect the water.

Choose two suitable examination places, one upstream and one downstream in relation to the industry.

Investigate plant and animal life and use them as indicators. Investigate water quality (N, P, K), pH and Secchi depth.

Write a single report on the results and focus on land use, resource utilization and quality of the aquatic ecosystems. Consider how water quality can be improved.

The Lake Victoria week

The Lake Victoria week is a thematic week about freshwater in the Lake Victoria catchment area.

Lake Victoria is the world's second largest freshwater lake and is shared by Kenya, Tanzania and Uganda. 27 million people live in the lake basin and most of these, 80%, live on small farms.

Lake Victoria is beset by many problems. The number of fish species has declined by 80% and pressure from the fishing industry is intense. For many years the lake has struggled with water hyacinth, an introduced alien species, which has rapidly spread out to cover large areas of the surface. The lake suffers greatly from eutrophication. If you want to do something about problems in the water you must start on land. Other problems include deforestation, 70% of the surrounding forests have been lost, and farming practices that lead among other things to increased erosion.

A weekly plan

Day 1: Water is our life – an introductory day

Day 2: A fictive trip

Day 3: Monitoring my travel

Day 4: Water as a resource

Day 5: Summing up

Water is our life - an introductory day

Water, water everywhere

Purpose

To introduce the concept of water.

What to do

Study a world map or a globe. The planet should have been called Water instead of Earth. Two thirds of the surface is covered by water, one third by land. Challenge the unreflecting perceptions of the participants with some questions:

- There is water everywhere. Can you see any water at this moment?
- Is there any water, visible or invisible, indoors?
- Where is the water inside you?
- Where is the water in the landscape?
- Where does all water in the landscape come from?

Follow up

Use the words from the questions and the answers you get above in the map in the Chart of Thoughts activity. Look at the Resources chapter.



WHOLE SCHOOL APPROACH

Introduction

In order to meet the important challenge of sustainable development we need to equip all students with the necessary knowledge, skills and values. This must be a concern for all staff at the school and means that all students, staff and parents should be involved, and it embraces all subjects and aspects of school life. We call this a whole-school approach.

Back casting

Purpose

To facilitate the development of a vision for a sustainable school.

What to do

This exercise follows the backcasting method. Its purpose is to illustrate this method and an important aspect of ESD, the shift from analysing current problems to a focus upon a desirable future.

Ask the participants to sit comfortably and put down anything they might be holding. Tell them to close their eyes and sit in silence. Ask them to consider the following questions:

How do you want your school to be ten years from now? Not how you believe it will be, but how you want it to be.

- You come to the school in the morning. What does it look like?
- You meet some colleagues. What do they talk about?
- You meet some students. What do they talk about?
- What is your job at the school?
- What difference does it make if you are a male or a female teacher?
- What difference does it make if a student is a male or a female student?
- Who influences your tasks?
- Who do you cooperate with?
- How do you integrate your teaching with other subjects?
- What influence do students have?
- How do you cooperate with parents?

- How do you connect schoolwork with the local society?
- To what extent do you use nature in your work?
- What does the school yard look like? How is it used in school work?
- How do you get food for meals at the school?
- What happens to the waste?
- Where do you get energy from?
- Tell them that you will now be silent for a few minutes and that you want them to concentrate on the question about how they want their school to be ten years from now, and that you will tell them when it is time for them to open their eyes again.

Play some soft music for a few minutes. Now tell everyone to open their eyes and return to the present. Ask them to figure out what you they can do today to turn this vision into reality.

Aspects of a Whole-school approach

Purpose

To identify important aspects and development areas for an ESD whole-school approach.

You will need

Three resource sheets:

- Aspects to be taken into consideration. (Resource 7)
- Whole-school Approach – summary points. (Resource 8)
- Self-assessment (Resource 9)

Background

WWF has worked with whole-school approaches in many countries. Based on this experience and on research carried out in the UK six important development areas have been identified and these have been further elaborated in Sweden and elsewhere. These areas are;

- School culture and ethos
- Monitoring and evaluation
- Teaching and learning
- Pupils
- Community
- School estate

These areas provide a good basis for developing the whole-school approach. However each individual school must identify the aspects they find necessary to develop the target areas and tailor them to fit conditions prevailing locally.

What to do

To start off with you may give the participants a few examples of how the whole-school approach may be implemented, but without listing all the development areas mentioned above. Let the participants think of their own.

What do you aspects do you think are important when implementing a whole-school approach?

Distribute the work sheet: Aspects to be taken into consideration. (Resource 7)

Think for yourself for a couple of minutes and note some aspect you find important on the sheet.

Divide into groups and discuss:

Compile the input from the groups by asking each group to underline one particular aspect first; others can be added later on by anyone who wants. Note keywords on the black board (or flip chart) and use them to create a mindmap. Try to group different aspects together. Compare them with the six development areas identified by WWF.

Self-assessment

How can we know how far we have progressed with the whole-school approach? You have been told about some important development areas for this approach, such as School culture and ethos, M & E, teaching & learning, pupils, community and the school estate.

How can we identify milestones and stages in the implementation process, and how can we assess them? A whole-school approach is a journey with a destination but no end. You may reach higher stages along the way but you never get to the journey's end.

Purpose

To assess the progress of an ESD whole school-approach.

What to do

Show participants the assessment sheet.

Point out the meaning of the different stages in the simplified version.

Distribute the sheet and ask the participants to start off by thinking individually. Save the group discussions for later.

After you have elaborated the summary points and everyone has made a personal judgement of their relative importance, compare and discuss them in the various groups.

Then compile the results in plenary.

The assessment can be used to identify relevant actions that can be taken to develop each area to a higher level.

Action plan for whole-school approach

Purpose

To develop action plans for an ESD whole school-approach.

What to do

Ask the participants to look at the development areas they have identified and to evaluate the results of the assessment. With this in mind, what other actions might it be important to take?

Use the method: Workshop on concrete ideas for development, described on page 117.

To develop work plans use Resource 8.

Please find a full proposal for developing a whole-school approach in the material:

- "Pathways, a development framework for school sustainability"
- The material is available for free download on
- <http://assets.wwf.org.uk/downloads/pathways.pdf>

Comments

The traditional method of planning for the future is built upon extrapolation. An example:

– How many cars did we have in 1980?

– How many cars did we have in 1990?

– How many cars did we have in 2000?

– How many cars will we have in 2012?

– How many cars will we have in 2020?

... and the result might be a society that is not desirable!

The backcasting method isolates a desirable vision and asks the question: What should be done today to turn this vision into reality?

This method is used a lot by the business sector to clear out a desirable vision for their activities. The method can be illustrated by a story about Alice in Wonderland who one day met a cat in the middle of a dense forest:

Alice: ...I was just wondering if you could help me find my way.

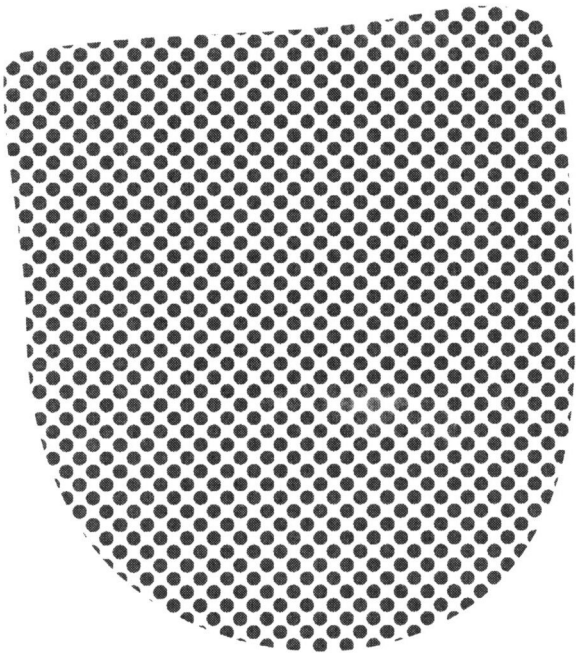
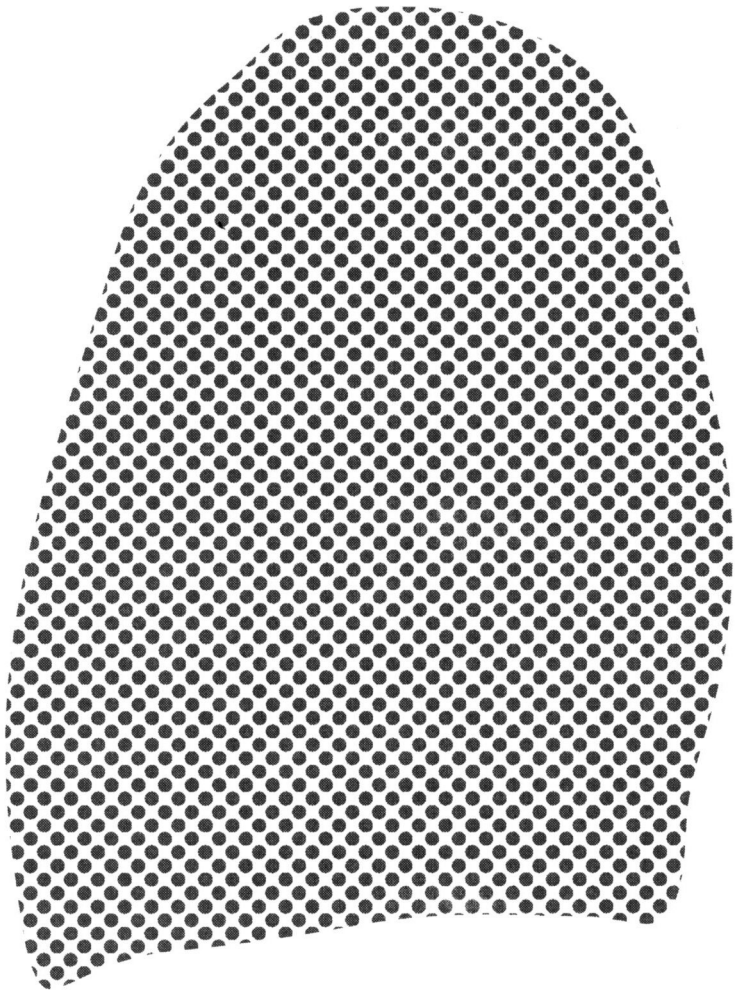
Cheshire Cat: Well that depends on where you want to get to.

Alice: Oh, it really doesn't matter, as long as ...

Cheshire Cat: Then it really doesn't matter which way you go.

We must start by developing our visions for the future in order to discover what steps we must take today to enable us to move in a desirable direction.















Roads in nature

A two-lane road passes through a forest where many animals live. Since the road is not very wide animals cross it frequently, especially at night. Traffic is becoming heavier and there is a demand for increased capacity. Some people want a four-lane road but the biologists say that then the animals will not cross the road any more. What alternative solution is best?

- Build a road going around the forest
- Keep the old road
- Build a four-lane road through the forest
- Your own alternative

Moral dilemma

When walking through the park one late evening you happen to see a man throwing out refuse from his car. Many containers full of waste have already been thrown into the creek that runs through the park. As you get close you see that the man is your new teacher. What should you do? Write down all possible alternatives regardless of whether they are bad or good.

What would be the consequence if you acted according to the different alternatives?

S = What should you do?

W = What would you do?



Who is most responsible for spreading environmentally harmful substances in our surroundings?

- The politicians
- The consumers
- Those who sell the products
- The producers

Predators attack livestock because

- They are angry and aggressive
- They need food for their offspring
- Livestock wanders deep into the forests
- Their natural habitats have been encroached upon

What is the main cause of forest degeneration?

- Collection of non-timber forest products
- Grazing
- Fires
- Fuel-wood collection
- Encroachment

Rank from 1-3

How can conflicts between man and wildlife best be lessened?

- More fences
- Pay compensation when livestock is killed
- Protect larger areas
- Relocate populations that live in conflict areas

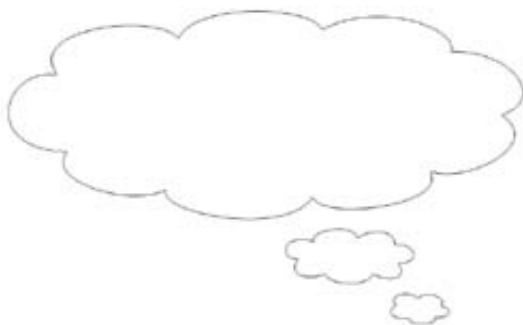
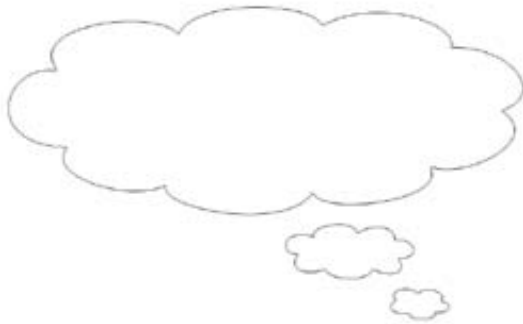
What is the most effective way to achieve a sustainable society?

- By legislation that forces good behaviour
- Taxes and fees that force good behaviour
- Through the educational system
- By international agreements

Elephant

1. When I think of elephants I think of
2. The best thing about an elephant is
3. If elephants are to coexist with farmers it is necessary that
4. The best way of protecting elephants is to
5. Elephants should be protected because
.....
.....

Aspects to be taken into consideration



Whole-school approach – summary points

SCHOOL CULTURE AND ETHOS

Whole-school approach

- The whole school is involved in decision-making.
- Participatory decision-making addresses all aspects of school life.
- Whole-school policy.
- Learning for Sustainability is embedded in the school's mission and ethos.

MONITORING AND EVALUATION

Monitoring and evaluation for good practice

- The school is a learning organisation and uses a cycle of planning, action, observation, reflection and revision to develop good practices.

TEACHING AND LEARNING

Formal curriculum (core and non-core)

- If education for sustainable development (ESD) is statutory, curriculum requirements are addressed.
- A progression describes age-appropriate Learning for Sustainability that explores key concepts, theories, skills, values and attitudes.

Diversity

- Direct experiences with 'nature' inspire learners and link learning with values and attitudes that advance sustainability.
- The curriculum has a global dimension that offers a relevant context through which pupils enrich their understanding of other cultures and societies.
- The ways in which the school respects and values diversity are apparent to pupils.

Quality teaching

- Stimulating learning resources and rich learning environments are available.
- Child-centric learning models, modes and strategies are applied.

Professional development

- Professional development opportunities that advance Learning for Sustainability are available to all teachers and staff.

Whole-school approach – summary points

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PUPILS

Safe and supportive learning environment

Pupils are supported as they take creative risks.

Pupils appraise their own learning.

Pupil participation and empowerment

- Pupils have meaningful opportunities to participate in school-based decision-making.
- Pupils have opportunities to practise leadership and citizenship skills.

COMMUNITY

Links with parents, governors and school boards

- The school – and its governors or school board – fosters productive relationships with parents.
- The school values the contributions of parents and governors or staff members.

Links with the community

- The school is valued as part of the community.
- The community is valued as part of the school.
- Pupils have the capacity and the opportunity to make a positive contribution to the community.

Links with the wider community

- The school recognises that it is locally based and globally placed.
- This recognition figures prominently in decision-making.

SCHOOL ESTATE

School resource management

- Sustainability guides decision-making about procurement, waste management, energy and water use.
- The school models good practice for sustainability.

School build and restoration

- The school employs and models technologies that advance sustainability.
- The school is a 'building that teaches'.

School grounds

- The school grounds support the curriculum.
- Pupils are engaged in school grounds research, design, construction and maintenance that advance sustainability.

Self-assessment



for a living planet®

ASSESSMENT CRITERIA OF THE LEVEL OF ESD IMPLEMENTATION IN SCHOOLS

Theme	ESD INDICATOR	A GRADE	B GRADE	C GRADE	D GRADE
School Culture & Ethos	Whole school approach	All the students, teachers and non teaching staff and the Parents Teachers Association (PTA) are involved in decision making.	All the students, teachers and non teaching staff are in the process of putting in place systems that will facilitate an inclusive participatory approach to learning for sustainability	A few teachers are aware about inclusive participatory approach learning and they are interested in its implementation in the school. The community	Not aware and/or do not understand the concept of ESD. No sign of participatory approach to Learning for sustainability and decision making is done at the School Board Level
		Learning for Sustainability is embedded in the schools mission and ethos and all the school's stake holders understand it	There is a clear indication that Learning for sustainability elements are emphasized in the schools operations	The school is considering incorporating aspects of Learning for sustainability in its operations	Very little or no comprehension of Learning for sustainability and how it could be a part of the school policy
		The school has also partnered with community in greening initiatives and income generating activities	The school is in the process of engaging with the community on greening initiatives and income generating activities	The school has made contacts with the community on collaborating on environmental improvement and income generating activities	The school has not involved the community in its greening initiatives and income generating activities

		The School has a management policy that has incorporated Learning for Sustainability Principles	The School is developing a management policy that is incorporating Learning for Sustainability Principles	The School has an idea of having a policy that incorporates learning for sustainability principles	The School does not have a management policy and has no idea of having Learning for Sustainability in a school policy
	Pupil's Participation & Empowerment	Pupils are engaged in meaningful decision – making about their issues and running of the school	Only school prefects are involved in meaningful decision-making about student issues and running of the school	Pupils are consulted about their issues and the running of the school but their suggestions are never considered	Pupils are never consulted in any decisions made on their issues and running of the school
Teaching and Learning (formal curricula and co - curricula)	Quality Teaching	The systems of teaching and learning are learner centered.	There are indications that the teaching and learning systems gives consideration to the learners.	There is a general agreement that the learner should be the focus in both teaching and learning	No idea on how teaching and learning could be made learner centered
		There is emphasis of growth of both body and mind for holistic education of the learners (not just examination oriented education)	There is a strong indication of holistic education	The school encourages learners participation in activities that involve both mental and physical growth	The school emphasizes completion of syllabus, utilizes all the school hours for academic work and measures the schools success by the numbers to students who pass the national examinations
		Guidance and counseling is part of the curriculum	There is evidence that guidance and counseling takes place	There are plans to introduce guidance and counseling	The school does not consider guidance and counseling as having anything to do with the curriculum.

	Diversity	There are strong indications that the school respects and values diversity (staff gender balance, physically challenged learners, religious differences, ethnic differences) and this is apparent to the pupils	There is some evidence that the school respects and values diversity	The school recognizes that diversity should be accommodated but there are no signs of implementation	The school does not demonstrate any sign of acknowledging diversity and have no idea on how to consider it in the school
		Stimulating learning resources and variety in methods of learning and teaching (diverse pedagogical methods) are available to enable the students have more time and space to maximize their potential	The school has incorporated a variety of teaching and learning methods	Some teachers have attempted to use a variety of teaching and learning methods	The teaching and learning methods used in the school are the traditional instruction methods
	Values and Attitudes	Curriculum teaching inspire the learners and link learning with values and attitudes that advance sustainability	There is a recognizable level of linkages between learning with values and attitudes that advance sustainability	A group of teachers do attempt to integrate the concept of sustainability as they teach the curriculum.	Curriculum teaching utilizes the up-down method and strictly limits coverage to the syllabus as directed by the Ministry of Education guidelines
	Professional development of teachers in ESD	All teachers in the school have undergone an in-service training on ESD	Most teachers in the school have undergone an in – service training on ESD	A few teachers have undergone in-service training on ESD.	No teacher in the school has ever attended an ESD workshop
Community	Links with Parents, Governors & School Boards	The school has recognized links with parents, governors, local leaders and the Parents Teachers Association(PTA)	There is evidence that the school has functional links with the community	The school has issue specific links with the community	There is no formal link with the community but sometimes the community is invited when there is need

The School Estate	Links with the Community	The school values contributions of parents, neighbouring community, sponsoring institution (e.g. church) and staff members	There are indications that contributions from the community are welcome and valued	The school respects contributions from the community	The school assumes independence and has all required mechanisms; therefore do not consider input from the community as being of any value
	School – Community Integration	The school is viewed as part of the community and the community is viewed as part of the school	The school considers the community part of the school	There is general consensus that the community is part of the school because the community is its source of pupils	The school considers itself independent of the community and the community does not identify with the school
	School Resources Management	Sustainability guides the choice and use of resources such as water and energy	There is evidence that sustainability influences the use choice and use of resources such as water and energy	There is general knowledge about wise use of natural resources for sustainability	Choice and use of resources such as water and energy are guided by other considerations
	Waste Management	There is a well established waste management system	There is evidence that some care has been taken in dealing with waste	Evidence of waste is not visible but there is no indication that this has been done in relation to the principles of good waste management	Waste is not considered a big issue, there are other priorities e.g. pupils are passing in their exams
	School Compound	The school compound is generally clean and free of plastic and waste paper	There is evidence that effort is made towards keeping the school compound rubbish free	The compound is generally clean apart from some used plastic here and there	There is no sign that any effort is ever made to clear the school compound of rubbish
	School Build & Restoration	The School has sound structures that are well maintained and safe to be in with evidence of optimum use of school build e.g rain water harvesting etc.	The School structures are well maintained. There is little evidence of optimum use of the school build to promote sustainability principles	The school structures are in fairly good state.	The school structures are old and broken down and need serious renovation.
	School Grounds	The school compound qualifies to be called a “talking compound” (i.e. has	The school compound has some eco-codes and signs of conscious environment	The science department has labeled some trees and the school believes that “a	There is very little or no evidence that any effort has been made towards creating

		conservation demonstrations, information, eco-codes (e.g. “water is life-save it”, have you switched off the light?”), trees are labeled, tree planting projects, composting pits, bird feeding tables etc)	conservation projects/activities	talking compound” would enhance the image of the school as an institution of learning	“a talking compound”
Monitoring and Evaluation	Action Learning	There is participatory monitoring and evaluation in the school whereby the learners develop good practice by continuously managing and monitoring their greening initiatives on the school ground.	A few students are involved in monitoring and managing the greening initiatives in the school grounds	The school environmental club or wildlife club is assigned the task of monitoring and managing the school greening initiatives.	There is no proper assigned responsibility on managing the school greening initiatives and the trees, flowers, grasses planted e.g. wither and die.
		The teachers use the school grounds to teach most of the school curriculum.	The teachers use action learning only with specific topics with no interlinked continuous activities on the school grounds	Action learning is used in a class once a term on a practical session or field trip.	There is no action learning and an end of term field trip is considered as sufficient to complement the classroom teaching and learning for the whole school term

Make water safe to drink

Direct Boiling

- Collect Water
- Warm it under the sun to save boiling time
- Boil the water using energy saving stove
- Filter the boiled water using a clean cloth
- Keep boiled water in a raised container to avoid contamination



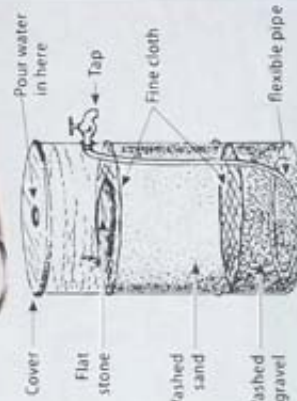
Household slow sand filter

Materials

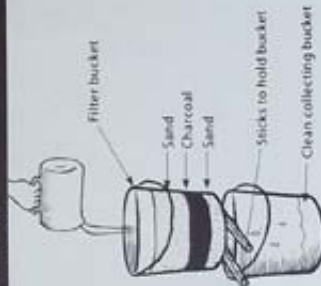
- Watertight container
- Hose pipe and tap
- Gravel
- Clean river sand
- Fine cloth

How to make

- Clean a watertight container
- Drill a hole from the top of the container for the valve or tap. The hole should be sized for the fitting on the tap.
- Prepare the flexible water collecting pipe. Drill many small holes near the end of the pipe and seal the end, and form it into a ring on the bottom of the container with the holes facing downward.
- Connect the top of the hosepipe (the end with no holes) to the tap. Seal the pipe fittings with hose clamps or wire.
- Place a layer of clean gravel at the bottom of the barrel to cover the water-collecting pipe. Cover the gravel with fine cloth and fill the barrel with clean river sand just below the tap. Then cover the sand with a second fine cloth.
- Make a cover for the container, with a hole in it to pour water through. Place a flat rock or dish under the hole to prevent disturbing the sand when water is poured in.
- Flush the filter with water. Once the filter is cleaned, it is ready to use.



Charcoal Filter



MATERIALS:

- 2 metal or plastic buckets.
- A bucket of coarse clean sand and wood charcoal

HOW TO MAKE

- Make holes in the bottom of one of the buckets.
- Clean the sand, crush wood charcoal into small pieces.
- Put a layer of clean sand into the filter bucket
- Place a layer of crushed charcoal on top of the sand and fill the bucket with more sand, until the sand is almost to the top of the bucket.
- Place the second bucket under the filter bucket using sticks.
- Now the filter is ready for use.
- Allow the water you collect to settle before pouring it through the filter. Drinking water collects in the clean, bottom bucket.

Notes:
It is important to remove and clean the charcoal every few weeks if the filter is used daily.



Disinfect water with sunlight

Solar Water Disinfection (SODIS)

- Use clean plastic bottles
- Fill bottles with water and close the cap
- Line bottles horizontally on the roof
Expose bottles to direct sunlight for at least 6 hours (or 2 days under very cloudy conditions)
Sun's ultra-violet rays kill all germs
- Drink SODIS water directly from the bottles or from clean cups



"Learn to conserve for a better tomorrow."



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EDUCATION

THE ROLE OF THE INSTRUCTOR

The role of the instructor is to supervise learning and to help structure and organise the work.

FOUR THOUGHTS ABOUT LEARNING

You will meet four philosophies of learning. These are described openly and impartially and it you should read and reflect upon them carefully.

LOCALLY RELEVANT THEMES

One of the important aspects of Education for Sustainable Development is to connect school work with reality outside the school: the local community, the needs of the country and the whole planet.

COMPETENCE IN DEMOCRACY

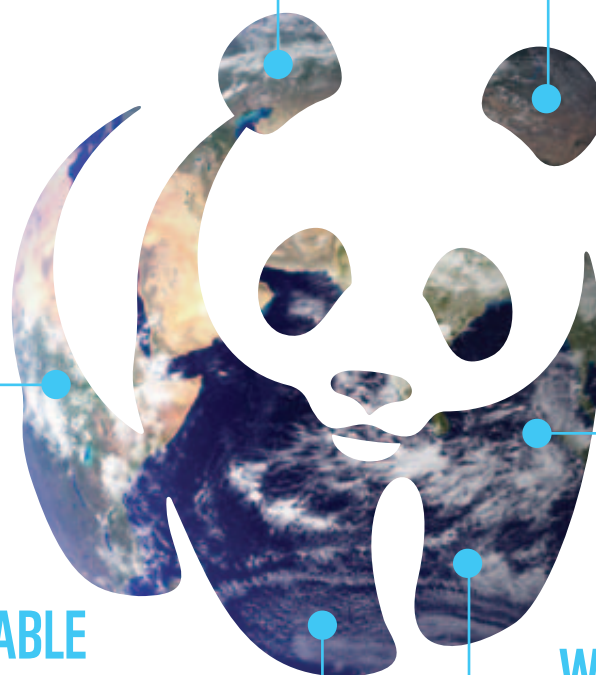
Every day we all encounter different situations that force us to reflect and make decisions. Values exercises are one way of developing democracy. It is about exploring people's attitudes and values.

WHAT IS SUSTAINABLE DEVELOPMENT?

The world faces great challenges which are complex and span a wide variety of ecological, social and economic factors. To really understand the meaning of sustainable development you must grasp the links that exist between these factors.

WITH NATURE AS A CLASSROOM

Students learn a lot when they are greening their school yard. While they build waste management facilities, vermi-composts, develop gardens, cleaning areas from plastic, they develop an individual action competence.



Methodologies towards a sustainable future

The Lake Victoria region is full of natural resources. Yet it faces vast challenges from depleting environments, climate change, poverty and overpopulation. If these challenges are to be turned into opportunities, schools and communities have important role to play.

This material is intended as a source of inspiration and support for teachers and trainers to develop forms, tools and methodologies that will develop action competence for sustainability.



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

www.panda.org/earpo

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