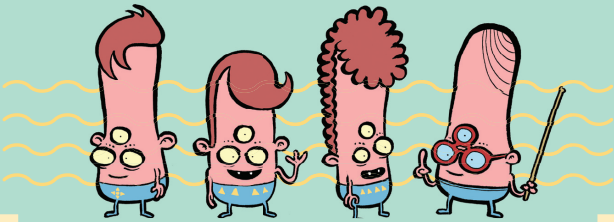
EXPEDITION

MUNDUS



MANUAL FOR TEACHERS

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1. BRIEF DESCRIPTION OF GAME

Expedition Mundus is a fun educational game that familiarises pupils with scientific research. Please note: in this game, 'science' refers to the natural sciences, but also to the humanities and the social sciences. The game shows pupils that science is not about 'knowing a lot', but rather about curiosity, creativity and logical thinking. Expedition Mundus is a perfect starting point for inquiry-based learning. The original game was intended for Dutch pupils in the lower years of secondary school (age 12 to 15). The present version of the game has an extra set of cards developed especially for primary school pupils (age 8 to 12). This manual is valid for both versions.

The game starts with a story that the teacher reads to his or her pupils about three scientists who travel to the planet Mundus and get to know its inhabitants, the Mundians. Note: although the game refers to Mundians as 'he', there are male and female Mundians on Mundus! The pupils then take over. They investigate pictures, texts and other sources and try to answer all sorts of questions about Mundus. In other words, they go on a class expedition.

This manual explains the rules of the game and how to play it. After your pupils have played the game and you have discussed it with them, you can undertake all sorts of follow-up activities (described later on in the manual) with the whole class to support inquiry-based learning in relation to any school subject.

2. MATERIALS

Expedition Mundus was originally developed for pupils in the lower years of secondary school (ages 12 to 15). The game you have is an extended version for primary school pupils that has been translated into English. The game consists of the following materials:

- question and answer cards, divided into four categories:
  - basic (light green, numbered B1 to B50)
  - level 1 (red, numbered 1 to 51)
  - level 2 (dark grey, numbered 52 to 108)
  - level 3 (blue, numbered 109 to 141)
- 30 sources (A4 sheets with drawings, graphs, tables and so on),
- an instruction sheet,
- this manual for teachers, including an introductory story and a concluding story.

Expedition Mundus can be adapted to any class level. The table below shows which materials you will need to play the game at each level. Please note: these are only recommendations. Once you've played the game, you can add or omit materials as you see fit. Besides the materials listed above, you will need a blank sheet of paper for each pair of pupils; they will use this to collect and 'publish' their answer cards and to keep score.

Table 1. Materials needed by level

	cards	sources	introductory and concluding story
age 8 to 10	basic	Subset of 16 sources (see below)	yes
age 10 to 12	basic, level 1 (level 2 where relevant)	all sources	where relevant
age 12 and up	basic, levels 1 and 2	all sources	no
age 12 and up	levels 1 to 3	all sources	no

Pupils can answer the basic questions (the light green cards numbered B1 to B50) by studying a subset of 16 sources that avoid more complex concepts. If you play the game using only these questions (for example for age 8 to 10)), you need only make these sources available. That will cut down on the amount of time your pupils spend searching and allow them to find the answers faster. If your pupils catch on well, you can introduce the other sources and level 1 questions later in the game.
The subset consists of the following 16 sources:

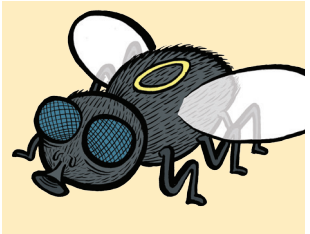
1. map of Mundus,
2. village scene,
3. mealtime scene,
4. school scene,
5. plants growing in three seasons,
6. page from biology book (1),
7. page from biology book (2),
8. excavation 1 (with skeletons),
9. excavation 2 (with skeletons),
10. hills on Mundus,
11. temperature chart (weather chart 1),
12. table showing distances between towns,
13. number system,
14. problems from arithmetic notebook,
15. Mundian words and symbols,
16. timeline.

3. PREPARATION

1. Read through the background information about the planet Mundus (section 6.3 in this manual).
2. Try out the game yourself with a few colleagues or family members. This will give you a good idea of how it is played. Don't be surprised if your pupils take half the amount of time you do to collect the right answer!
3. For practical reasons, it would be a good idea to have another teacher or classroom assistant helping out while your class plays the game. Both of you will then be able to check the pupils' answers.
4. Post the sources on the board or wall around the classroom. You will use the map and the village scene while reading the introductory story, so keep them separate and only post them afterwards. It would be handy to post related sources next to one another, especially the following:

- the Mundian words and symbols and the illustrations showing Mundians speaking,
- the number system, the sums from the arithmetic notebook, and the timeline,
- the two pages from the biology book and the plants in three seasons,
- the two excavations,
- the table showing distances between towns and the map of Mundus.

5. Rearrange the desks in your classroom so that pupils can walk around easily and inspect all the sources closely. Reserve one big table for checking answers. Place a number of desks in the middle of the classroom where pupils can deposit their answer cards. This is the 'publication table'.



6. Separate the question cards into colour sets if necessary (levels of difficulty) and shuffle the cards in each set. Put the set (or sets) on the table where you plan to check the answers.
7. Spread the answer cards out on the table with the text facing down, or hold the pile of cards in your hand if you find that more convenient. Sort the cards by colour and put them in numerical order so that you can quickly find the right answer during the game.
8. Place one sheet of blank paper on the publication table for each pair of pupils. Have the pupils write their names down on their sheet. When a pupil answers a question correctly, they will place their answer card on top of their own sheet (this represents 'publishing' in the scientific world).

4. THE GAME

4.1 Introduction

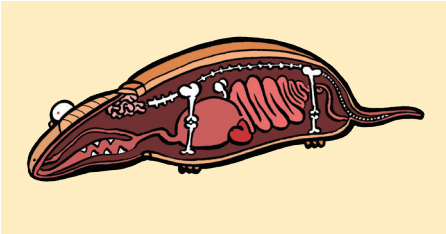
1. Tell your pupils that they are going to play a game about an expedition to an unknown planet.
2. Read the introductory story ('Planet in sight') out loud. In the story, three scientists in outer space are looking at planet Mundus. To give the pupils an idea of what the scientists see, show them the map. Later, show them the village scene picture. Use these illustrations while reading the story out loud. You might also want to ask your pupils what else there is to see.
3. Explain how the game is played. Tell your pupils the following:

a. In this game, you will join Milan, Sophie and Sara on an expedition. You'll be discovering things about the planet Mundus. You'll have to use the sources that Milan, Sophie and Sara have collected. The sources are the sheets that you see posted around the classroom. If you decide not to read the introductory story out loud, then there is no need to mention the main characters' names. Just tell the pupils that these are sources collected by other scientists.
b. Pupils may work in pairs. I want each pair to write both their names down on a blank piece of paper. Put the paper on the publication table (point to the table). You can naturally decide to pair up your pupils yourself.
c. Once you've done that, come to my desk to collect three question cards.
d. You will be searching through the sources for answers to the questions.
e. If you think you know the answer to a question, come to me or to my assistant and let us check it.
f. If your answer is correct, you turn in your question card and receive the matching answer card. You then put this answer card down on your own piece of paper on the publication table. Now everyone can read the information (we can say that it has been published in the 'newspaper for scientists'). You can then collect a new question card.
g. If your answer is wrong, you may try again. Go back to the sources to look for the right answer. If you really can't find it after a thorough search, then turn in your question card and collect a new one.
h. Please note: as the game goes on, there will be more and more cards on the publication table. Read them carefully, because you can use the information on them to answer other questions.
i. The pair who has scored the most points at the end of the game wins (for scoring, see the next section). You can decide for yourself how much you want to emphasise the competition element of the game.

4. Please note: the point of the game is to get pupils to look up the right answer, and not to simply guess at it. If you have time when checking answers, ask the pupils WHY they think the answer is correct. That is especially important for questions for which the answer is either yes or no.

4.2 How to play

1. Divide your class into twos and give each pair three question cards. From that point on, pupils are free to walk around the classroom and the game can begin.
2. Sit or stand behind the table on which you have placed the answer cards (preferably with another teacher or assistant).
3. Check the pupil's answers by reading the relevant answer card first. If they have answered correctly, then hand them that answer card. The pupils should place this card on their sheet of paper. If they get the question wrong, they can try again or put the card back on the stack of 'unanswered questions'. Depending on their level or the difficulty of the question, you may mark partially correct answers as correct.
4. Pupils may collect new questions themselves. They should always have a maximum of three question cards per pair.
5. The game can continue until all the questions have been answered, but that is not necessary. Thirty to forty minutes is generally enough time to answer most of the questions and declare one of the pairs the winner.
6. Have the pupils count up the points for all the answer cards on their piece of paper. The pair with the most points wins. The basic and level 1 questions count for one point each. The level 2 questions are worth two points, and the level 3 questions are worth three points.

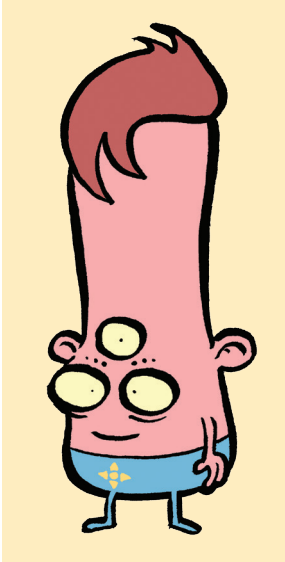


4.3 Discussion

Expedition Mundus is about science. Besides being fun to play, it also shows pupils how scientists do their work: by asking questions, exploring, trying to find answers and publishing them so that other scientists can read and use them too. To get pupils to think about doing research and 'how science works', it is important for you to talk about what they discovered playing the game and listening to the story. For more information about science and inquiry-based learning, see sections 6.1 and 6.2 of this manual.
1. Have all the pupils take their seats after the game ends.
2. Read the concluding story ('Mundian drawings') out loud.

Traits that make a good scientist
Discuss with your pupils what makes a good scientist. You can do this by referring to the three main characters in the story. Each one symbolises a different scientific trait.

3. Write the words 'being curious', 'knowing a lot' and 'figuring things out' on the board.
4. Ask the pupils to link the main characters with the traits (Sara = being curious, Sophie = knowing a lot, Milan = figuring things out). Write the names next to the words on the board. Ask the pupils what happens in the story to make them think that. For example, Sara asks a lot of questions and comes up with the idea of going on the expedition. Sophie knows a lot of facts, for example about the Mayan temples and that the yellow paint comes from iron in the soil. Milan is quick to make connections between things, for example in the case of the large animal depicted in the drawings. If you decide not to read the concluding story out loud, then skip this step.



5. Ask the pupils which trait they think is most important for scientists. Ask the class: Does a scientist have to know a lot? Does a scientist have to be curious? Does a scientist have to see connections between things? Which of the three (Milan, Sophie or Sara) would they want to have along, in case they were going on their own scientific expedition?
6. Finally, sum up by telling that a good scientist should have all these traits. Scientists need to know a lot so that they can build on previous research or things that we already know. Curiosity is essential, because scientists have to ask questions and should want to research things. But it is also important for scientists to be able to make connections, so that they learn about things beyond what they see around them. For more information, see section 6.1.

Quiz: propositions about science
Discuss the following claims (propositions) with the pupils. It is important for the pupils to say whether they agree or disagree with each proposition. For example, you can ask them to stand up or to raise their hands if they agree.

7. Check whether the pupils understand what to do by starting with a simple proposition. For example, 'Scientists ask questions'.
8. Read each proposition out loud and discuss briefly why it is true or false.

I. *'Scientists work together.'*
This is true. In the story, you saw that the three scientists worked together quite a bit. And you worked in twos during the game. In real life, scientists often work in small groups. And scientists always make use of discoveries that other scientists have made.

II. *'Science is everywhere.'*
This is true. In the game, you saw that you can research everything: nature, culture, language, and so on. In fact, anything you can ask questions about is a good subject for scientific research. And many of the objects that you see around you are the result of science in some way or other.

III. *'A scientist knows a whole lot about everything.'*
This is false. Scientists are interested in many different subjects, for example language, arithmetic, music, sport, nature, history and geography. We call these 'disciplines'. Scientists are often very good in one particular discipline. After all, it is easier to answer questions about something that you are already familiar with. We call them specialists.

IV. *'Scientists keep an eye on one another to check whether they are doing things right.'*
This is true. In the game, you weren't allowed to simply place the answer to a question on the publication table. You had to have the answer checked first. The same thing happens in science. If you've discovered something and want to publish it, then other scientists first check whether you've done your research properly. If you have, then your research is published in a journal.

V. *'Scientists are always right.'*
This is false. Scientists try to discover things, but they don't always know everything for certain. They naturally try to learn as much as possible so that they can feel certain of their conclusions. Because scientists are learning more and more all the time, it sometimes happens that a discovery that seemed certain at first suddenly turns out not to be true.

5. FOLLOW-UP ACTIVITIES

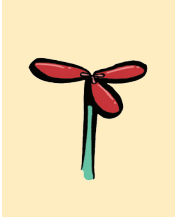
The following assignments make suitable follow-up activities after playing Expedition Mundus.

5.1 Have pupils come up with questions and sources themselves

1. Have your pupils think up a new research question themselves. Give them a few examples, such as 'How many legs do shellbeasts have?' or 'What colour is the fruit of the climb-up?' The question should naturally be about the planet Mundus. Each pair should come up with at least one new question. The pupils should also be able to explain which sources will be needed to answer the question.
2. Discuss the questions with the whole class, or let the pupils answer one another's questions.
3. Have the pupils create a new source themselves. Make sure they have paper, colouring pencils and other materials. The source can be a drawing, a text, a table or even a three-dimensional model. It should be something that a scientist doing research on Mundus could have made.
4. Ask the pupils to think up three questions that can be answered using their new source.
5. Discuss the new sources and questions with the whole class, or let the pupils answer one another's questions.

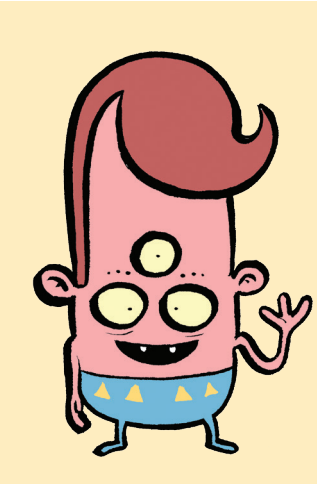
5.2 A Mundian on Earth

In this activity, the pupils go on their own expedition. They pretend to be Mundians visiting Earth for the first time. Pupils think up their own questions and do their own research.
1. Before class begins, think of a suitable place for pupils to go on expedition. Is your school located in a village? Have the pupils explore the village. Is it in a city? Think of a few locations that pupils can explore.
2. Start the lesson by telling the pupils to imagine that they are Mundians visiting Earth. They don't know anything about the planet (i.e. Earth), and so they must go on expedition.
3. Divide the class into groups of four. Assign one of the following four disciplines to each group: (a) language, (b) culture and history, (c) nature (d) planet and climate.
4. Have each group come up with at least four questions related to their discipline. The question should concern something that a Mundian would know nothing about. Good questions are those that can be researched by observing, taking measurements, or talking to people. Have the pupils submit their questions to you in advance.



5. Give the pupils 20 minutes to explore. They can inspect things, take measurements, ask people questions, and so on. They must write down the answers to their questions in their notebooks.
7. Discuss the expedition with the class afterwards. Have each group read their questions out loud and tell the class the answers they have found. Ask them how they found the answer to each question. Invite the whole class to make suggestions: how do we go about researching this?
8. Finally, ask the class what sort of things they think would surprise a Mundian if he visited Earth. Would he think that our language sounds funny? Or that we look strange? Or that the animals on Earth are very odd?

5.3 An experiment: making pancakes



In this activity, the pupils carry out an actual experiment the way real scientists do. It is a good way to become acquainted with inquiry-based learning. Pupils work in groups of four. To make the pancakes, they will need access to a hotplate or cooker (for example, you can have the groups take turns making pancakes in the school kitchen). You can also decide to skip making the pancakes and simply talk through the experiment with the class instead, so that they go through the steps in their minds and perhaps do the experiment at home with their parents.

1. *See that each group has the following materials:*
- *100 g. / 3,5 oz. of flour*
- *200 ml. / 3,5 fl oz. / 6 Tbsp and 2 Tsp (US) / 7 Tbsp (UK) of milk*
- *1 egg*
- *two bowls (mixing bowls)*
- *a whisk*

You need the following to make the pancakes:
- *a frying pan*
- *a spatula*
- *butter or oil*
- *a cooker or hotplate*

2. Ask the pupils which ingredients they need to make pancakes. Don't accept 'a box of pancake mix' as the only answer; ask them what they need to make pancakes from scratch.
3. Ask them why they have to add an egg to the batter. Typical answers are 'the pancake sticks together better' or 'it tastes better'. Explain that their answer is a 'hypothesis': a provisional answer that you expect to be true but aren't sure about yet.
4. Explain that they are going to study whether pancakes stick together better if they are made with an egg. Discuss how to research this question honestly. Explain that to do that, they will need to make one pancake with an egg and one without an egg, and otherwise use exactly the same ingredients and procedures in both cases. That way they will find out precisely what an egg does when it is added to pancake batter. It would not be enough to simply make a pancake without an egg. If the pancake doesn't stick together, then you wouldn't know whether that is because you used the wrong type of butter or didn't turn the burner up high enough. You need to make an egg pancake in exactly the same way as you made the no-egg pancake, as a 'control experiment'.
5. Give each group the ingredients and utensils and have them make a batter. Then let them make their pancakes (in turns).
6. Discuss the results of the experiment with the entire class. How did they find out what the egg does (by touching, smelling, tasting, pulling the pancake apart)?
7. Repeat the research question: does a pancake stick together better when it is made with an egg or without it? What conclusion can you reach? Have all the groups reached the same conclusion? If not, why is that?
8. If you have time, discuss how to set up an honest experiment that explores the effect of adding an egg on the taste of the pancake. You will have to test the results with a blindfold and not tell the test person beforehand which pancake he or she will be eating.
9. After the experiment, ask the pupils whether they have other questions.
10. Summarise on the board how scientific research is carried out.

Step 1 Start with a question.
Step 2. Think up a hypothesis (the answer you expect to get).
Step 3. Think of an honest way (a method) to test the hypothesis.
Step 4. Write the results down.
Step 5. Share your results with others (that's called 'publishing').

At the end of your research, you may often find you have a whole new set of questions (and so you go back to step 1). Of course you also know more than you did before.

5.4 An experiment: sprouting seeds

In this activity, the pupils will carry out an experiment that resembles one of the experiments conducted by the scientists on Mundus. Please note: this experiment takes several days to carry out.

1. *See that each group has the following materials:*
- *four small dishes or saucers*
- *cotton wool*
- *cress or alfalfa seeds*
- *stickers*
- *a cup of water*

2. Divide the class into groups of four.
3. Tell them that the scientists on Mundus have also carried out various experiments. For example, they wanted to know how the climb-up on Mundus grows. Do the seeds of the plant need water, or not? And do they need sunlight to sprout?
4. Explain that each group will be researching the same question, not with the climb-up on Mundus but with cress. The questions they will be answering are: Do cress seeds need water to sprout? Do they need sunlight to sprout? There are four different 'conditions' (see below). Have the children think about what the conditions should be. You could use the term 'honest' to describe the control or comparison experiments. Write the four conditions on the board.
- *one saucer of seeds that is left in the sun and gets water*
- *one saucer of seeds that is left in the sun and gets no water*
- *one saucer of seeds that is stored in the dark and gets water*
- *one saucer of seeds that is stored in the dark and gets no water*

5. Discuss what the class expects the results of the experiment to be. In which saucer or saucers will the seeds sprout?
6. Give each group their materials. Each saucer should have a sticker bearing the names of the pupils in the group. Have the pupils cover the four saucers with a thin layer of cotton wool. Tell them to pour some water on two of the four saucers so that the cotton wool is wet. Finally, have them distribute about ten cress seeds on each saucer.
7. Make sure that for each group, two of the four saucers (one wet and one dry) are kept in a sunny spot. The other two saucers should be kept in a dark place (for example in a cupboard).
8. Water the saucers that are supposed to be wet every day so that the cotton wool remains damp (but don't give them too much; there should not be a layer of water on the bottom of the saucer).
9. Have the pupils check all the saucers regularly. After a week, tell the pupils to compare the four saucers. Write the following questions on the board and have the pupils answer them in their notebook.

a) Do cress seeds need sunlight to sprout? How do you know that? Which two saucers should you be comparing?

b) Do cress seeds need water to sprout? How do you know that? Which two saucers should you be comparing?

5.5 Other suggestions for lessons

Below are ideas for follow-up activities that you can work out yourself. These are mainly creative activities. Be sure to draw attention to the scientific aspects, i.e. asking questions and doing research.

1. PE: how does a Mundian walk?
   a. Study the sources and find information that suggests how a Mundian walks.
   b. Imitate a Mundian's walk. Then try to walk like a shellbeast.
2. Drawing: what does Mundian art look like?
   a. Study the sources and find information that suggests what Mundian art looks like.
   b. Create a Mundian work of art.
3. Language: what are Mundian stories or legends about?
   a. Imagine what scientists might find out about this. What sort of information would you need to write a Mundian story or legend? Think of questions that you'd like to know the answers to.
   b. Write your own Mundian story or legend.
4. Language: what does the Mundian language sound like?
   a. Study the sources and find information about the Mundian language.
   b. Think about how human beings make sounds and why the sounds are different.
   c. Speak Mundian with your classmates. Think up a few new words and write them down.
5. Music: what is Mundian music like?
   a. Imagine what scientists might find out about this. Think of a few questions that you'd like to know the answers to.
   b. Make up a Mundian song.
6. Technology: what does the scientists' spaceship, the Explora, look like?
   a. Think of what you'd like to know about the spaceship. Think of a few questions that you'd like the answers to.
   b. Draw the spaceship, or make a papier-mâché model.
7. Geography: what does the planet next to Mundus look like?
   a. Imagine what scientists might find out about this neighbouring planet. Think of a few questions that you'd like the answers to.
   b. Draw a map of the neighbouring planet.
8. Biology: what other species of animals are there on Mundus?
   a. Imagine what scientists might find out about these other species. Think of a few questions that you'd like the answers to.
   b. Think of another species that might live on Mundus and draw it.

6. BACKGROUND INFORMATION

6.1 Characteristics of science

Below is a brief description of what science is, and how science differs from and is similar to Expedition Mundus. Use this description to inform the discussion with your pupils after they have played the game.

Enquiring attitude
Scientists are constantly asking questions of all kinds. They try to understand the world around them. The question cards in Expedition Mundus also ask all sorts of questions about the planet. Real scientists naturally don't have ready-made research questions handed to them. They have to think up the questions themselves.

Publishing
Scientists share their results of their research by publishing them in a scientific journal. Scientific knowledge is public information, in other words. We can compare that to the answer cards: pupils who answered a question correctly placed the relevant answer card on the table so that everyone could read it. Scientific results really only count once they have been published. That's because scientific journals are always 'peer-reviewed'. In other words, articles are checked and evaluated by fellow scientists before publication.

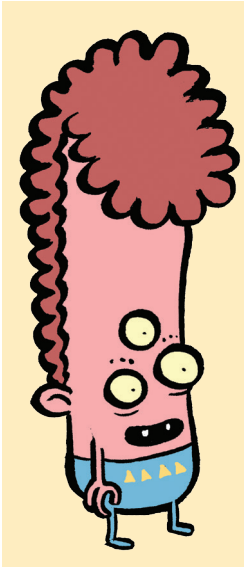
Reviewers
Before an article can be published, it is sent around to a few other scientists – who often remain anonymous – so that it can be checked thoroughly. The reviewers assess whether the research has been carried out correctly (for example were there control experiments or any calculation errors?) and whether the conclusions are sound enough to be published. This is comparable to the teacher checking whether a pupil has found the right answer before allowing that answer to be published.

Building on existing knowledge
Some of the more difficult questions in Expedition Mundus can only be answered by knowing the answers to other questions. That is the same in real science. A research question builds on existing knowledge. Or, as Sir Isaac Newton once said: 'If I have seen further, it is by standing on the shoulders of giants'.

Cooperation
Scientists seldom work entirely alone. That is why pupils are allowed to work in twos in Expedition Mundus . It often takes a lot of time to conduct research (for example

to carry out experiments), and two heads are better than one. Scientists also work together because they may be building on other scientists' results.

Competition
Scientists also compete with one another, of course. As in Expedition Mundus, they do that with their publications. The more articles and books a scientist publishes, the higher his or her status. Prestigious journals, books or conferences are worth more (more 'points') than unknown journals.



No 'right' answers
There are, of course, also differences between Expedition Mundus and the real world of science. One difference has to do with checking the answers. At school and in the game, the point is to give the right answer. Is the answer correct or incorrect? That usually isn't possible in science, because scientists can never know for sure whether their answers are right. Science is based on cumulative insight and human endeavour. It sometimes happens that a published article later turns out to make incorrect claims. Science, then, involves searching for and defending the best answer that we can find at a given moment.

Disciplines
'Science' refers to the natural sciences, but also to the humanities and the social sciences. Science can be divided into many different disciplines. Some of these can be seen in the game's sources and questions, i.e. linguistics, art and culture, history, geography, biology, physics and mathematics.

Specialisation
Scientists are often very smart in one particular discipline. After all, it is easier to answer questions about something that you are already familiar with. Depending on how you play Expedition Mundus, you can have pupils specialise. For example, you can place the stacks of unanswered questions with the text facing up, so that pupils can choose the questions themselves. Or you can allow pupils to swap questions cards with one another.

6.2 The planet Mundus

Planet
Mundus is a relatively small planet. Gravity is weaker than on Earth, and water boils at 70°C. There are 18 hours in a day on Mundus, and 180 days in a year. Mundus has three seasons: klang tomi (cold, dry and calm), klang raf raf (hot, dry and very windy) and klang blof (hot, wet and calm). One hundred and fifty years ago, a volcano erupted on Mundus, plunging it into a lengthy 'dark era' (slip kara).

Life
Mundus has a number of different organisms. Besides the Mundians – the intelligent inhabitants of Mundus – there is the shellbeast (pilo), the ringfly (fofi), the climb-up (deffe), the spiceherb (waan) and ticklegrass (pluk). The source illustrating the food web on Mundus shows the food relationship between these organisms. Another source shows in which season each of the plants flowers and/or bears fruit. In earlier times – before the dark era – another large animal lived on Mundus (kalif maya). The Mundians kept the kalif maya as livestock, but it is now extinct. It is not possible to keep shellbeasts as livestock because they are very aggressive when they have offspring and will not reproduce in captivity.

Language
The Mundians have a spoken and written language. They write from left to right, with each symbol (each letter) standing for a single sound. They do not conjugate verbs. They turn singular nouns into plural nouns by writing the word twice in a row. Writing an adjective twice in a row means 'very...'.

Mathematics
The Mundians have a six-figure number system consisting of dots (1 dot = 1), lines (1 line = 6), triangles (1 triangle = 36) and crescents (1 crescent = 216). They also have symbols for addition, subtraction, multiplication, and division.

Culture
Important cultural symbols are the climb-up flower and the sun (which are depicted in the same way) and the number 144 (four triangles, reflecting the four petals of the climb-up flower). Before the dark era (the slip dok dok period), it was easier for the Mundians to come by food (they reared livestock), giving them much more free time. They engaged in trade, built a huge maze (kapuki maya), and had more time for cultural activities. Now (slip okke), the Mundians no longer keep livestock, and they spend most of their day growing crops (for example the spiceherb) and hunting shellbeasts. Mundian children attend school three hours a day.

7. STORIES TO READ ALOUD

The two stories on the following pages belong to the primary school version of the Expedition Mundus game. The first story – 'Planet in sight' – should be read before the pupils start playing the game. Use the map of Mundus and the village scene (the large sheets) to illustrate the story as you read it out loud. The second story – 'Mundian drawings' – should be read aloud after the pupils have played the game. This story will also help you start the post-game discussion.

7.1 PLANET IN SIGHT (introductory story)

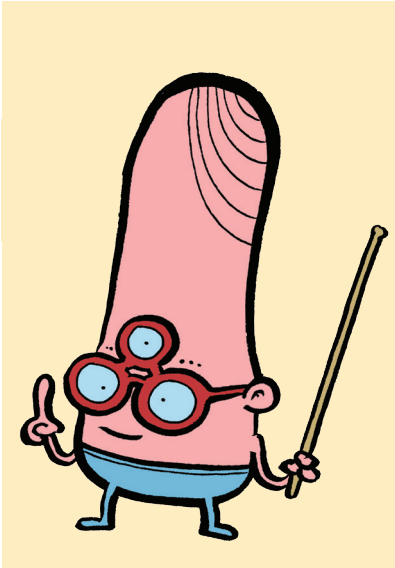
Millions of kilometres from Earth, the spaceship Explora is speeding through the universe. It is quiet on board. The three passengers are asleep. Suddenly, a bell starts to ring in the control room. A text appears on one of the computer screens: 'planet_in_sight'.
Sara sits straight up in bed. 'Huh? What was that?' She looks through the porthole and sees that they are slowly but surely drawing near an unknown planet.
'Wow. I would like to take a look around there!' Sara cries. She wakes up the other two passengers.
'It's only 14 minutes past five!' Sophie grumbles. 'I am entitled to another 76 minutes of sleep.' But then she sees Sara standing at the porthole.
'Come look, it's beautiful!' says Sara. 'I see an ocean. And hills and a river. And all that green stuff – can those be plants?'
Sophie's eyes begin to shine. 'It is lovely, isn't it.'
Finally, even Milan wakes up. When he looks through the porthole and sees the strange planet, his mouth falls open in amazement. 'It looks like there is life on that planet. Aliens...'
'Let's go there. We are going to land,' says Sara. The other two look at her in astonishment.
'But isn't that dangerous?' Sophie asks. 'I remember that a group of French astronauts disappeared in 2007 when they...'.
'Nonsense!' Sara replies. 'Have you forgotten that we are scientists? The purpose of our trip is to discover an unknown planet. So let's go explore!'
'Whatever we do, we better reduce speed now or we will be in real trouble,' says Milan.

They get to work straight away in the control room. Sophie carefully navigates the Explora closer to the new planet. They keep the spaceship suspended a safe distance above the surface of the planet. They get out their binoculars.

'Yes, there are plants growing there! And look, I see animals too. We have discovered alien life!' Milan says.
Sara grins at him. 'Hey, I see animals with a sort of shell. I'll call them shellbeasts for now. Have you two noticed those creatures there? Do you think they built all those houses?'
'Wait a minute,' Milan replies. 'What makes you so sure that they are houses? They could be very unusual trees. We need more information before we can say for sure, don't you think, Sophie?'
'You are right,' says Sophie. 'The Mayas in South America had all sorts of buildings that turned out to be temples, not houses. Let's take some notes so that we don't forget everything later on.'

Sophie takes her laptop and starts typing. 'There seem to be different species of animals here, and different varieties of plants.'
'They have paint too – have you noticed?' Milan points to one of the creatures, who is painting yellow shapes.
'Maybe there is iron in the soil,' says Sophie. 'We use that on Earth to make yellow paint.'

'OK, we are about to land!' says Sara, and grasps the spaceship's steering wheel. They land the Explora carefully in an open area. They have arrived. Sophie takes her laptop, a thermometer and a few other items and they go outside. Now that the engines have been switched off, it is suddenly eerily quiet.



But then they hear a chorus of voices crying 'Pi! Pi! Pi!' They see the creatures that they had spotted from the spaceship emerge from the woods from all different directions. The creatures make a sign with their fingers – a sort of triangle. Sara carefully raises both her hands into the air. Nothing happens. The creatures stop a short distance away. Then one of them steps forward and says to Sara 'Yanna Mundion. Apa lo bozo?'

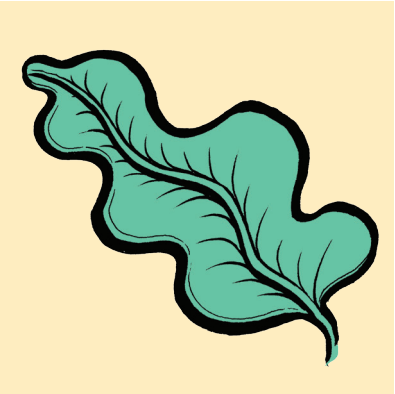
7.2 MUNDIAN DRAWINGS (concluding story)

Sara, Sophie and Milan are standing at the door of the school talking to two Mundians. Inside, the class is having an arithmetic lesson. Sara swats away a ringfly that is buzzing around her head. One of the Mundians produces a large white climb-up berry and gives it to Milan.
'Pika lo,' whispers Sophie in his ear. 'That means thank you.'
'Pika lo!' Milan says out loud.
'Apa steppe kapuki maya?'
'What does that mean, Sophie?' asks Sara. 'You speak Mundian better than we do.'
'He says that he wants to take us to the big maze. You know, that big structure at the edge of the village. How exciting!'

They walk between the houses. Some of them have a garden where they see spiceherb plants growing. The Mundians are hard at work in their gardens, but they give the three scientists a friendly wave as they pass by. Once they have left the village, the huge old structure finally comes in view.
'Kapuki maya!'

They enter the maze, with Sara and the Mundians in the lead. They walk through a warren of corridors, turning left, right, right again, left, and right again until they are completely turned around. At each turn, it gets darker and colder, and they realise that they must be very deep into the maze by now. Finally, they enter a huge, dark hall.
Sara, Sophie and Milan look breathlessly at the walls. They are covered from top to bottom in drawings.
Look,' says Milan, 'they are drawings of Mundians and shellbeasts...'
'Here is a drawing of a whole Mundian village!' says Sara. 'Look at this – the houses look very different than the ones we've been seeing. And the village looks much bigger!'
'Slip dok dok,' says one of the Mundians softly, and points to the drawings.
'That was in earlier times. They call it the very good era,' Sophie explains. 'It was before the volcano erupted.'

The drawings show all sorts of things: Mundians hunting shellbeasts, and Mundians playing music and dancing. All of the Mundians in the drawings are wearing brightly coloured clothes.
'Look at this,' says Milan. 'There's another animal in this drawing and it is much bigger than a shellbeast. It must be the animal whose skeleton we found during

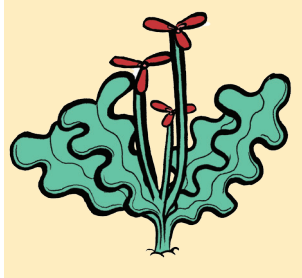


the excavation.'
'The kalif maya,' Sophie adds.
'Gee,' says Milan, 'look at the lovely dark purple coat it had. And those heavy, hairy paws...'

Suddenly they hear a loud rumbling, creaking and squeaking. When they turn round, they see Sara several paces away with her arm plunged into a hole in the wall.
'What have you done?' Sophie cries. 'Are you stuck?'
'No, I'm fine,' Sara calls back. 'There's a handle in this hole! Watch this!' Slowly, part of the wall slides sideways. A bit of grit falls, but it then grows quiet. A dark corridor has appeared behind the wall. There are thin strands hanging down from the ceiling that resemble cobwebs. They walk into the corridor, which ends at the top of a long spiral staircase. They see a faint light shining far down below.
'Pi!' the Mundians say in fear.
Sara, Sophie and Milan look at one another.
'Come on,' says Sara, 'let's go explore.' And she descends the first step of the spiral staircase.

ABOUT THIS PUBLICATION

Expedition Mundus for Primary School Pupils is a translation of an extended version of an original game developed for the lower years of secondary school. The original game and the extended version were projects undertaken by De Jonge Akademie and made possible by SNS REAAL Fonds and the Royal Netherlands Academy of Arts and Sciences. The extended version, which includes a manual for teachers and extra card sets in addition to the original game, was authored by De Praktijk and Maarten Kleinhans of De Jonge Akademie, part of the Royal Netherlands Academy of Arts and Sciences.



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