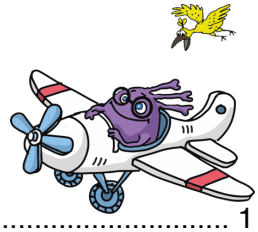
Kuarki – Traveller between wor(l)ds

manual



1. What is the app TBW and who is it suitable for?

TBW is an app for multilingual children ten years or older. With the help of this app children can enlarge their vocabulary and practise their reading and writing skills.
The app aims at helping to close the gap between the language spoken in school and at home as well as providing the learner with new information in an entertaining and fun way.
Children who learn a foreign language and who wish to work on their reading ability, may also find the app a useful tool.

2. Which languages does the app offer?

The app exists in German, English, Lithuanian, Romanian, Russian, Slovak, Slovenian, Hungarian, Turkish and Croatian.

3. What is the structure of the app?

The contents of the app is divided into four topics. In each of them there are the answers to numerous questions that children frequently ask. Some words in the text are underlined. If you click on them a window opens that provides an audio of the word as well as a translation into the chosen language.
Each text is followed by exercises that are meant to make the learners read the text attentively and purposefully, to revise new and difficult words in order to understand and memorise them.

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4. Which topics does the app deal with?

The app is divided into four topics:

- Human Being
- Life
- Earth
- Universe

Human being

1. How old am I?
   Ovum – Spermcell – Fertilization – Embryo
2. Am I one or many?
   Cells – Bacteria – Organs – Intestines – Antibiotics
3. Why don't I bleed to death when I cut myself?
   Cardiovascular System – Cells – Blood – Blood Vessels – Blood cells – Carbondioxid
4. Why do I forget some things while I memorize others?
   Brain – Neurons – Cells – Hippocampus – Operation
5. Why does practise make perfect?
   Brain – Neurons – Information – Axon – Myelin
6. Why do I get tired in the evening?
   Hormons – Melatonin – Brain – Ancestors
7. Why can't I see colours in the dark?
   Brain – Information – Receptor Cells – Pupil – Lens – Retina – Cones – Rod Cell
8. Why do I get goosebumps when I am cold?
   Organ – Nervs – Cells – Cutis – Basal Layer – Stratum Corneum – Melanin
9. Why do all people look differently?
   DNA – Cells – Organism – Tissue – Molecule – Proteins – Genes
10. Why do I have a runny nose when I have a cold?
    Immune system – Bacteria – Viruses – Pathogens – Defence Cell

Life

1. How did life develop on earth?
   Theory – Living Being – Cell – Unicellular Organism – Evolution
2. Why are there so many different living beings on earth?
   Charles Darwin – Living beings – Breeding – Generation – Adaptation – Evolution – Fossil – Genes
3. How are fossils formed?
   Fossil – Evolution – Microfossil – Microskop – Ancestor – Dinosaur – Paleontologist – Amphibium
4. Why are there no dinosaurs any more?
   Dinosaur – Mammal – Catastrophe – Meteorite impact – Carnivore – Herbivore
5. Do all animals have sex?
   Living Being – Descendant – Ancestor – Asexual/sexual Reproduction – Organism – Mutation – Parasite
6. What do plants eat?
   Energy – Glucosis – Nutrients – Cellulosis – Minerals
7. Do human beings descend from chimpanzees?
   Paleoanthropology – Species – Chimpanzees – Ancestor – Evolution – Descendant – Fossil – Die Out
8. What ist he biggest organism in the world?
   Organism – Dinosaur – Annual Ring – Reproduction – Genes – Descendant – Mushroom – Seagrass
9. Do animals use tools?
   Tool – Ancestor – Termites – Chimpanzee – Spezies – Crow
10. Why do species become extinct even today?
    Species – Become extinct – Dinosaur – Individual – Environment – Habitat – Climate change

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Earth

1. Why does it rain?
   Water cycle – Atmosphere – States of matter – Condensation
2. How did the Alps form?
   Alps – Strata – Tectonic plates – Continents – Erosion
3. What is in the centre oft he earth?
   Strata – Bacteria – Earthquakes – Seismic waves – Tectonic plates – Magma
4. Why do we have seasons?
   Earth's axis – Northern hemisphere – Southern hemisphere – North pole – Equator – Regions – Horizon
5. Why ist he sky blue?
   Atmosphere – Energy – Light waves – Gas – Gas molecules
6. Why does our climate change?
   Climate – Climate change – Carbon cycle – Carbon dioxide – Fossil fuel – Atmosphere
7. Why are the oceans salty?
   Oceans – Fresh water – Salt water – Black smokers – Evaporate
8. What does everything consist of?
   Atom – Electron – Proton – Neutron – Molecule

Universe

1. Why don’t we fall into space?
   Physicists – Gravitation – Mass – Solar system – Black hole – Atmosphere – Tides
2. Why does the moon change its shape?
   Atmosphere – Crater – Universe – Reflect – Full moon
3. How old is the universe?
   Galaxy – Star – Theory – Energy – Atom – Dinosaur – Calendar
4. Where is our solar system situated?
   Planet – Telescope – Galaxy – Gravitation – Lightyear – Spaceship – Diameter
5. What is a lightyear?
   Speed – Lightyear – Astronomer – Telescope – Galaxy
6. Which planet in the solar system is the biggest?
   Solar system – Planet – Dwarf planet – Gas planet – Astronomer
7. What does the universe consist of?
   Atom – Galaxy – Planet – Energy – Gravitation – Black hole – Matter
8. Why is the sun hot?
   Solar system – Mass – Galaxy – Gas – Pressure – Temperature

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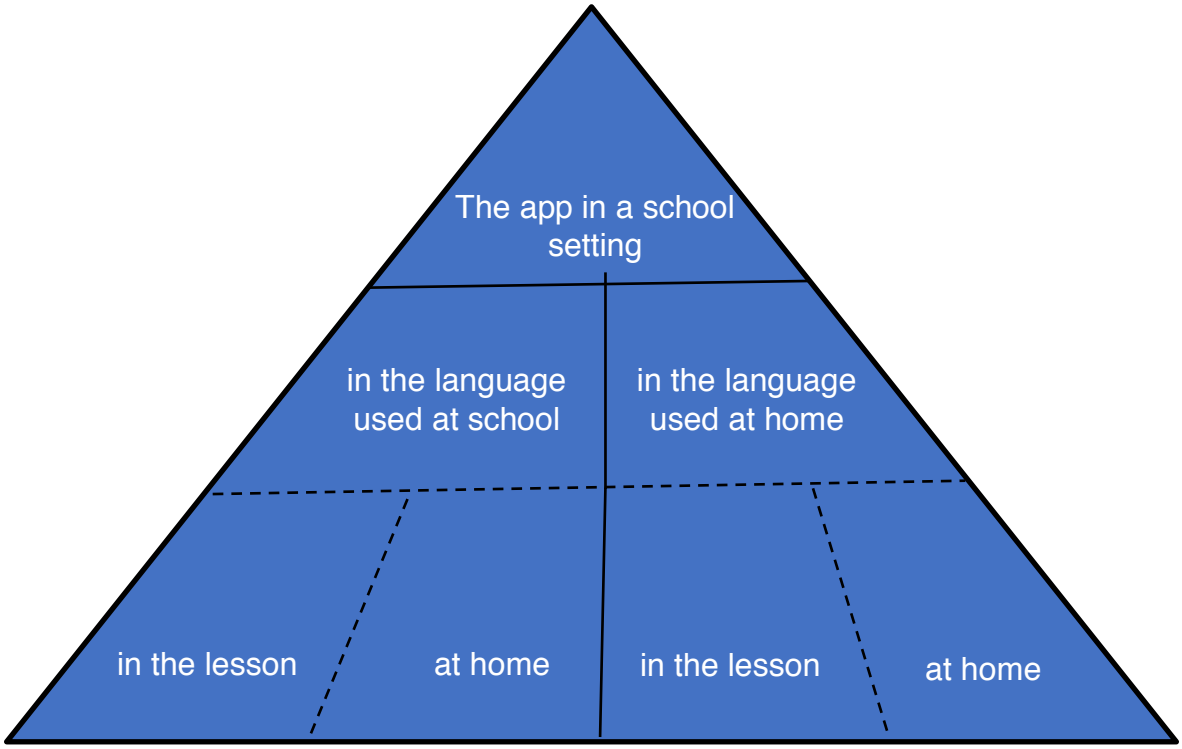
5. How to work with the app?

5.1 Possible Applications

There are many possible ways of applying the TBW app in an educational environment. So primary school as well as foreign language teachers can make use of it in many different ways. The following display gives an idea of these:



Primary school teachers can use the app either in the language spoken at school or in the students' native languages (German, English, Lithuanian, Romanian, Russian, Slovak, Slovenian, Hungarian, Turkish and Croatian) since all contents is available in all the languages listed above. The wide range of uses is increased even more by the fact that the contents can either be integrated in the lessons or can be offered as an enrichment at home.
Foreign language teachers can use the contents of the TWB app classically or in a CLIL setting. In this case the possible uses are dependent on the Science curriculum. Otherwise the possible uses are less fixed and offer great freedom of choice.
In the following you can find some general and relatively openly outlined proposals for possible uses. They are based first and foremost on the settings mentioned above. Further uses of the TBW App in classical foreign language lessons at the end.

5.2 TBW in the lessons in the language spoken at school

In Science lessons topics that are part of the curriculum can be used as complementary or differentiating material. Because the App is used in the language spoken at school the teacher can help and give advice if need be and discuss the topic with them. Top-performing students can be offered the tasks of the app as enrichment material. There are different possibilities:

1. As **additional material** suitable content of the App can directly be integrated in the lessons in the language spoken at school.
2. As a **differentiating offer** students can skim the text in the language spoken at school and get on overview of the contents (text and illustrations). Later on they can give a short presentations of their impression for the other students.

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3. **Top-performing students** can read the text in the language spoken at school and solve the tasks that are based on them as enrichment material.

The material in the app can be the basis for work in all kinds of settings as for instance individual work, partner or group work.According to the goals set one should keep mind if heterogenious or homogenious group are the better choice.

5.3 TBW in the lesson in the native or a foreign language

After a topic has been dealt with in the lesson the teacher can ask the students to work on the same topic in their native language or in a foreign language. Although the teacher might not speak the native languages of the students that is not a problem because the App offers a direct feedback on the how the students cope.

1. As **additional material** suitable content of the App can directly be integrated in the lessons by allowing the students to use the App in their natives languages, or a foreign language if native languages are not available as well as in the language spoken at school. In this way all students work on the same contents but in different languages.
2. As a **differentiating offer** students can skim the text in the language spoken at school and get on overview of the contents (text and illustrations). Later on they can give a short presentations of their impression for the other students. In this way the students practise their mediation skills.
3. **Top-performing students** can read the text either in their native or a foreign language or in the language spoken at school and solve the tasks that are based on them as enrichment material. In this case the focus is on training language skills individually.

5.4 TBW in the lesson in the language spoken at school, a native and/or a foreign language

After a topic has been dealt with in the lesson the teacher can ask the students to work on the same topic in the language spoken at school, in their native language and/or in a foreign language. Although the students are already familiar with the topics the different language is a challenge and so the work with the App causes a deeper knowledge and understanding of the material. Their grasp of the terminology in one language will make them more self-confident and the attractive visual aids of the App will make the work pleasurable. As the App offers direct feedback there is a greater level of independence. Students who have had positive experience with the work with the App might invite others to join in by producing a poster, give a presentation or make a quiz for their classmates (e.g. Kahoot) or organise a discussion on the topics.

1. As **additional material** suitable content of the app can worked with at home:
    a. *The students use the app in the language spoken at school.* In this way all students work on the same contents but in different languages - they widen their Science skills as well as their language skills.
    b. *The students use the app in their native languages* if it is available**.** So they work on the same topic but get provided with a wider scope of material (texts and tasks) and deepen their grasp on their native language.
    c. *The students use the app in a foreign language* that they learn at school like for instance English or German. By doing this they develop their foreign language skills with the help of interesting texts made especially with the students in mind. Even if the topics as well as the language might be above their current level the visualizations, the attraction of the medium App and the internationalism (bacteria, univers) will help them cope. It will make them strive to do the tasks increase reading and general motivation.
2. As a **differentiating offer** students can skim the text in the language spoken at school or their native language and get on overview of the contents (text and illustrations). Later on they can give a short presentations of their impression for the other students. In this way their mediation skills are trained.
3. **Top-performing students** can read the text in their own language at home as an additional task and solve the corresponding tasks in their own language, in another language or in the school language. In this case it is about the individual promotion of linguistic competence.

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This short description of the manifold possibilities of the use of the App in the lesson or as homework offers educators a wide variety of applications. Of course we would also like to mention that the app can also be used to learn a foreign or second language autonomously. In this case it is up to the learners to make their choices what to deal with.

This is by far not all yet but it might give some hints and ideas.

It should be added as a final creed that there is no limit to the creativity of educators - they just have to make use of it!

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