VIDU
BIOLOGY

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Task Sheet for Teachers // Module 1 - Photo based

"Plants and animals in the seasons"

Preliminary note: This task sheet is for you (the teacher) and will give a first overview of the main task ideas. It is work in progress and we would appreciate your comments and ideas for improvement. Thank you.

Learning objectives: The students explore plants and / or animals in their environment through photos, share them and explain the biological phenomena on the basis of what they have recorded.

Goals of the task: The biological goals are to explore the living systems in different seasons and how living beings have adapted and evolved over long time periods to survive the different seasons and temperatures. In addition, which strategies organisms use to survive despite massive variations in abiotic and biotic factors in the different seasons).

Examples of plants: explore
- how flowering plants survive the winter
- what part of the plants survive the winter and how do they look
- how hibernating plants grow from buds, either in the soil or on branches
- what strategies flowering plants use to survive the cold winter with as little damage as possible
- what are the different ways of coping with winter, and compare the pros and cons

Examples for animals: explore
- what animals look like in the season you are interested in and why
- what are the specific colours of birds or mammals in each season - connected with camouflage but also courtship
- what special features do animals use to protect themselves from the cold
- what changes are there with mammals in their coat, for example, thickness of fur; you can look at horses, foxes and wild rabbits

Support materials: Permission template, task examples, technical support sheet, video tutorial (https://youtu.be/LPSxgMm0gK0) and student sheets.

Step-by-step guide

Step 1 **Preparation**	**Get permission** Get written permission from parents (template provided) **Introduce vidubiology to the students** Introduce the content (connected with the respective curriculum) Introduce the production part (support material provided) Show examples and web pages from European schools for inspiration **Setting up the project** Create a time line for the activities, and develop a work plan together or individually in small groups (amount of lessons, project duration); consider how homework / out of school work, can be integrated Set up teams of 2 or 3 students Prepare biological materials if needed Discuss and prepare what hardware the students will use
Step 2 **Planning**	**Students plan the project** (student sheet provided) Students select and prepare their topic with the assistance from a teacher using a mind map to collect possible content ideas Students work on their approach (of investigation); starting with draft ideas and then taking it further Students plan the possible photos they can take ("What makes a good photo", "What do you want to show?") and create a photo shoot list based on their topic and location. Teacher check the results of their planning
Step 3 **Shooting**	**Taking the photos** (video tutorial, technology support sheet and student sheet provided) Students decide on their final location for their topic, possibly with assistance from teacher Students take photos of their animals or plants. They should have considered before the picture framing, composition, camera position, lighting (see extra sheets)
Step 4 **Reflection**	**Selecting the images** (student sheet provided) Students go through all the photos they have taken and evaluate what photos are the best in describing the topic they have chosen Students select their favourite photos (two or three for the presentation) Option: students group their photos according to location / biological topic / type of animal / plant, …
Step 5 **Presentation**	**Presenting the photos in class** Students present their photos and justify their selection Students reflect on their experience and what they have learnt Teacher moderates the presentations and brings together the biological findings Teacher uploads / emails images to the vidubiology team; the teacher has the option to present the outcomes to the parents and / or also use them as learning resources for future lessons

Technical support for module 1: Taking photos and uploading them

Students should be motivated to take photos creatively but at the same time present a biological phenomenon in such a way that other students can draw new insights from. The photo serves as a medium for exploring biological variations. It is a process where it is not just about beautiful images but images which bring across the biological content well.

What cameras can be used?

As we have mentioned – every camera technology can be used for the task. Use what is available. Cameras from mobile phones and tablets are the most available and have good quality. The lens is fixed (no zoom lens) but normally a digital zoom can be used (with a loss of quality). Old style compact cameras are very good, they normally come with a zoom lens which help to explore different framings more easily. DSLR /system photo cameras come with changeable lenses and offer more flexibility if students want to make this a bigger project and develop their photography skills.

Taking photos creatively (check video tutorial and student sheet)

Taking photos is a creative process and will need to be learned especially within the context of biology. Please encourage the students to not just run outside and come back five minutes later with results and the notion that all is done. It should rather be a process of taking photos, checking up and re-taking them. The immediateness of the digital technology (watching your photos straight away) helps the reflection and chance for improvement.

Suggestions which are based on the video tutorial are listed on the next page.

Uploading images

Sharing the process and outcomes is an integral part of vidubiology projects. Photos can be easily shared on Flickr but also other social platforms. Flickr (in comparison to Instagram) offers the opportunity that people can see the photos without logging in. Classes and / or students can create their own accounts. We would be happy to include your work in the project Flickr channel:

https://www.flickr.com/photos/vidubiology/

Suggestions for taking photos (video tutorial: https://youtu.be/LPSxgMm0gK0)

I. Work on camera framing and image composition

- Picture composition: explore different foregrounds and / or backgrounds;
- Picture framing: explore "tighter" and "looser" framing – showing a bit more or rather a bit less (and what difference it makes)
- Use of lens (if there is a choice): explore how different lenses influence the photo (such as telephoto lenses which go closer from a distance or wide angle lenses which show rather more from a short distance)
- Macro shots / close up (close up lenses): using macro functions or close up lenses (screwed on lenses) to go a lot closer

II. Work on the camera position

- High camera position: Look for higher camera positions to look down on the object (standing on chair / table, looking down from window / hill / …)
- Low camera position: put the camera as low possible to explore different images (placing the camera on the ground, holding it very low to look up on higher objects such as trees, …)
- Other camera positions: explore different places to cover the same object and observe how the images change

III. Work on lighting

- Use existing light: explore existing light; compare shooting in shadow and broad sunlight; explore using strong backlight (sun, reflection of sun); explore how shadows influence your photo;
- Use artificial light (such as camera flash, room light, desk lamps, bulbs, torches, …): explore how artificial light can change the image; how the combination of both lights work together

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