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PROFILING A VEGETABLE

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General information

Title of the activity

Profiling a vegetable

Subject

Biology, Science, career orientation

Keywords

Evidence Justification Vegetables Senses Interactive

Learning outcomes

Teacher learning outcomes:

- will be able to assess
- will be able to demonstrate the activity

Transversal skills (max 3 transversal skills)

critical thinking, application skills, reflective thinking, communication skills, media and information literacy.

Number of participants and target age group

All kinds of teachers (no age, group size 15-20)

Duration

50 - 90 mins

Short activity description

As students evaluate evidence presented on cards and identify vegetables they engage in argumentation. As they argue they should recognise that a good argument uses evidence to justify claims and that evidence is needed to oppose claims others make. Students will also develop a set of criteria for themselves which will help others recognise a vegetable. Teachers are going to foster scientific reasoning and develop transversal skills.

Preparation

Materials

List of materials:	**Technical backline:**
• 1 aubergine, red pepper, tomato, onion, parsnip, pea (or bean), cabbage, courgette, carrot, potato. 5 or more unusual specimens, e.g. plantain, avocado, chopping boards, knives, photocopies of sheets F5, F6, F7	No technical backline needed. Preparation phase: Computer, Laminator, Printer

Activity type/strategy

Lower order thinking			Higher order thinking		
Knowing / remembering	**Comprehending / understanding**	**Applying**	**Analyzing**	**Synthesizing / evaluating**	**Creating**
• **Illustrations** • **Examples**	• **Discussion**	• **Practice**	• **Problem solving**	• **Problem solving**	

Illustrations, Examples, Comprehending, Discussion, Practice, Problem solving

Delivery sequence

Epidemiological suitability

Is the activity suitable for execution in stricter epidemiological restrictions?
☐ Yes ☐ No ☒ Partly The teacher has to make sure that students keep distance to each other while working together.
Is the activity suitable for execution in an online setting? Please tick one of the boxes.
☐ Yes ☒ No ☐ Partly
Can the activity be sequenced? I. e. divided into smaller parts which could function as standalone parts which could maybe even be integrated into other activities.
☐ Yes ☒ No ☐ Partly

Step 1			
Step type/strategy:	Introduction/Preparation Phase	**Step duration** (minutes):	15 -25
Keywords:	senses; language; justifying - evidence cards		
Subaims: What teaching aims are you fulfilling with this part of the sequence?	Social competence (" the willingness and ability to deal with others in a rational and responsible manner) and communication. There are different methods of diving the groups. You have to think about the method you would like to use. It depends on the group you are working with. Prepare and copy the material.		

Step by step description:

- Tell the teachers that you are going to the whole acitivity (same set up as with the children in class).
- Then tell the teachers that they are going to work as teams of botanists who are looking at parts of plants to identify those parts we eat.
- Emphasise that they will firstly use their senses – seeing, touching, smelling – to help them identify the vegetable before they move on to cutting them up.
- Highlight the language they will need for this lesson.
- Divide the teachers into groups of 3; one to explain their thoughts, one to ask questions and one to make notes (the scribe will not talk at all until the plenary).
- Distribute one specimen (see the materials list) – it can be a different one for each group, and a set of evidence cards to each group, enlarge sheet F6, photocopy, cut up and laminate. They will use their senses and their evidence cards as they examine each vegetable.
- The aim is for the teachers to use the language on the cards to justify their claim that their vegetable is for, example, a carrot and not a cabbage. They will write their initial conclusion in their science notebook. They should also note what additional evidence they need to be certain.

Interpretation & analysis (for teacher trainers)	Make sure that everyone has understood the task (worst case: devoting more time to this stage). Answering any upcoming questions. You can discuss different group dividing methods, but discuss all of the preparation steps after the game is played. Try to create a situation like in a classroom. Teachers are now like students. Help them change roles. Each teacher gets the material for free, or the information where to download the material. Tell them at the beginning, that they will get the material.

Step 2			
Step type/strategy:	Experiment phase	Step duration (minutes):	20-35
Keywords:	Experiment; Analysis; Reasoning		
Subaims: What teaching aims are you fulfilling with this part of the sequence?	Teachers should learn how to guide experiments and how to teach scientific reasoning.		
Step by step description:			
○ Work with each group and ask what more evidence they need to complete the activity. Discuss how they will do this. They will need to cut up specimens to complete their analysis ○ Teachers cut up the specimens and add their final decision and reasons to the notes in their science notebook.			
Interpretation & analysis (for teacher trainers)	Make sure that teachers do this activity in order to find out which challenges students could face at this stage.		
Step 3			
Step type/strategy:	Reasoning phase	Step duration (minutes):	15-30
Keywords:	Reasoning; Discussion		
Subaims: What teaching aims are you fulfilling with this part of the sequence?	Teachers should support their decisions scientifically and have to work in groups and give feedback.		
Step by step description:			
○ Whole class plenary. The scribe speaks for each group. Ask groups in turn what their first specimen was and what part of the plant it came from. Ask the group what their response would be to anyone who disagreed with them. ○ Each group now has to make an evidence card for the unusual specimen on sheet F6. ○ Each group explains the criteria used for this evidence card to help others decide what the unusual specimen is and what part of the plant it comes from. Ask the teachers to note their ideas about using evidence to identifying vegetables in their science notebook. ○ At the end hand out “teachers' notes“. These notes might be helpful for the trained teachers to work in class with the students. ○ Engage the teachers in a discussion about the material. Discuss possible improvements and practicality in class.			
Interpretation & analysis (for teacher trainers)	Make sure that the teachers understand how to guide „scientific reasoning“. Ask them about possible challenges that might arise in the classroom.		

Wrap up & sequence interpretation	
Sequence interpretation & analysis (for teacher trainings)	This activity is a great starting activity to teach students scientific reasoning on a primary level or in lower secondary school.
Evaluation/assesment	
Feedback forms	

Questions to teachers:

1) How did you enjoy the material? (Scale)
2) Would you do the lesson?
3) Are there any suggestions to improve the material?
4) How can I argue the goals of the lesson (Scientific argument/ Nature of science)?

Annex A: Profiling a vegetable PDF