3.4.5 True or False? You're not fooling me!

Brief description, and rules of the implementation of the learning activity

The teacher starts with a thought-provoking question on any topic, followed by a fictional answer, and then the real scientific explanation. Students brainstorm possible answers, discuss their reasoning, and evaluate which explanation is more convincing. Through reflection, they learn to recognise the difference between plausible-sounding ideas and factual knowledge. For example, the topic could be animal features (Why are flamingos pink?), but the same approach can be applied to many other subjects.

Skill focus

- **Primary Skill Focus**
  - Critical thinking
- **Complementary/Secondary Skill Focus**
  - Creativity

Age group	Student number	Duration
6 -10 years old	Individual and whole class working in pairs or small groups	30-45 minutes

Proposed step by step implementation of the learning activity

Steps:

1. Present a thought-provoking question.
2. Let students brainstorm possible answers.
3. Provide the first explanation (fictional or scientific — students do not know which it is).
4. Ask whether this answer seems correct and why.
5. Provide the second explanation (the other perspective) and repeat the discussion.
6. Compare both explanations and reflect on which is more credible.
7. Emphasize the importance of critical evaluation; when repeating the activity, alternate which explanation comes first.

Indoor/Outdoor Classroom layout notes

This activity can be done in the classroom or outdoors. In class, students can read and discuss texts, while outdoors the questions can be linked to direct observations in nature or the environment.

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How does this learning activity develop this particular skill?

This activity develops critical thinking by asking students to evaluate the credibility of different explanations. They brainstorm their own ideas, then read two different answers without knowing which one is fictional and which one is scientific. By comparing and discussing both, students learn to question information, weigh arguments, and distinguish between plausible-sounding ideas and factual knowledge. These are aspects of critical thinking.

What do we want to achieve regarding primary skill development (student understanding and/or behaviour)?

Critical Thinking: Students learn to think critically by evaluating different explanations, identifying which arguments are more credible, and justifying their opinions. They become more aware of the difference between what sounds plausible and what is scientifically accurate. This helps them develop a questioning attitude and transfer these skills to other contexts, such as media or everyday information.

Suggested use, and practical subject-related examples

Examples of thought-provoking questions about animals:

- *Can penguins fly?*
- *Why are flamingos pink?*
- *Why does a pelican have such a large beak?*
- *Why does the panda have black spots?*
- *Why does the giraffe have such a long neck?*

Photos of the animals can be shown to support discussion.
The activity can be adapted to any topic where students can compare different explanations, fictional or factual.

Science:

- *Why do we see lightning before we hear thunder?*
- *Why does ice float on water?*
- *Why does metal feel colder than wood at the same temperature?*

Geography:

- *Why does it rain more in some countries than in others?*
- *Why are some mountains always covered in snow?*
- *Why do rivers usually flow towards the sea?*

Everyday life/technology:

- *Why do smartphones need to be charged every day?*
- *Why do mirrors show a reversed image?*
- *Why do airplanes leave white lines in the sky?*

Human body:

- *Why do we need to sleep every day?*
- *Why does our heart beat faster when we run?*
- *Why do we get goosebumps when we are cold?*

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Why do leaves change colour in autumn? (plants/nature)
Variant: Using a photo instead of text

- Show students a photo designed to provoke doubt or curiosity*: a swing placed in the middle of a road*.
- Teacher asks questions: *What do you see? Could this happen in real life? Why or why not?*
- Students brainstorm: *What seems off? What makes this suspicious?*
- Discuss in groups: *Could this be real or not?*
- Students provide arguments for and against the authenticity.
- Optional: vote – *Who thinks it is real? Who thinks it is not?*
- Reveal the truth: explain that the image was AI-generated.
- Reflect and discuss: *How can you recognize manipulated images? What can you learn from this? What does this teach us about how we interpret images?*
- *Can we still trust what we see?*

Materials and tools needed for implementation

The exact problem and the materials needed cannot be predicted in advance; students must identify the obstacle and, based on their proposed solution, determine and gather the materials required to address it.

Guiding questions

Questions during the brainstorming phase

- What do you think the answer could be?
- Why do you think that?
- Can you explain your reasoning?
- What other possibilities could there be?

Questions during the first (fictional) explanation

- Does this answer seem believable to you?
- What makes you think it is true or false?
- What evidence would support or contradict this explanation?
- Does this explanation make sense logically?

Questions during the second (scientific) explanation

- Does this answer seem more convincing than the first one? Why?
- What clues helped you determine which answer is more credible?
- How does this explanation compare with what you thought initially?

Tips and Tricks for dealing with challenges

- **Challenge:** Students may give immediate answers without following a structured reasoning process.
  Tip: Provide a thinking schema and guide students to work step by step (e.g., first predict, then compare explanations, then justify their choice before checking the correct answer).

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Statement	Do I think this is True or False?	Why do I think that?	What evidence do I have?
...	True / False	...	...

Difficulty level tailoring

When using "True or False? You're not fooling me!" as a working form with students aged 6 to 10, you can easily differentiate at three levels: beginner, advanced and expert.

- **Beginner learners (6-7 years old):** Students are given simple questions with two clearly different answers (one obviously fictional, one scientific). They discuss in pairs or small groups which answer seems more credible and why. Teacher guides the discussion closely, asking prompting questions.
- **Advanced learners (8-9 years old):** Use more complex or ambiguous problems that require independent thinking. Limit hints, so students must brainstorm multiple solutions themselves. Encourage reflection on why certain solutions may or may not work.
- **Expert learners (9–10 years old):** Students create their own thought-provoking question and write a fictional answer. The answer should relate to the animal's appearance. They must invent a logically plausible reason for the feature.

  Finally, students research the scientific (true) explanation themselves.

Debriefing and Reflection questions

Debriefing questions

- What strategies helped you decide which explanation was more credible?
- How can you apply this way of thinking to other subjects or everyday life?
- What helps you think critically?
- Did your opinion change? Why?
- Did you notice that something first seemed logical, but actually wasn't correct?
- Did anything surprise you during this activity? Why?
- How did your group discussion influence your opinion?
- What signs or clues help you recognize when information might be fictional or misleading?
- Do you feel more confident questioning what you read or see now?

Reflection questions

- What is the difference between a plausible-sounding idea and a factual explanation?
- How can you tell if information is reliable?
- How might you apply this way of thinking outside of school (e.g., in media, everyday life)?

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