

Lesson Plan

NEUROHEADWAY

Neuroscience Into Education

Slide	Subject	Description	Timing (total)
1	Introduction	Register pupils	2
2	Activity	“Who here has made logical inferences?” Allow pupils to think for a short while “All of you!”	2 (4)
3	Example 1	- The first thing many of you did today was to eat breakfast - You may have thought - I can eat cornflakes - Or I can toast - I don’t eat toast - Therefore, I eat corn flakes - You were reasoning, you were thinking logically! Learning objective (LO): get a first example of logical reasoning	3 (7)
4	Example 2, first definition of logical reasoning	- Carol thinks: - If I miss the bus, I have to walk to school - I missed the bus - Now I have to walk to school - Carol is reasoning logically, because you can know for sure that she has to walk to school. - Logical reasoning is valid: you know for certain that is correct. Emphasise the last bullet point: don’t be worried if the key concepts logic, reasoning and validity are not yet clear. LO: provide a definition of logical reasoning, introduce the word “valid”.	5 (12)
5	Activity	Can you think of other logical inferences? Let student think for 2-3 minutes, ask for 2-3 examples. LO: let pupils use the definition received in the last slide.	5 (17)
6	Where is logic used?	- Logic can help us everywhere. - What can logic do for us in football? LO: to show that logic is used everywhere	1 (18)

Power point Example

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- The first thing many of you did today was to eat breakfast
- You may have thought
 - I can eat cornflakes
 - Or I can toast
 - I don't eat toast
 - Therefore, I eat corn flakes
 - You were reasoning, you were thinking logically!



- Carol thinks:
 - If I miss the bus, I have to walk to school
 - I missed the bus
 - Now I have to walk to school
- Carol is reasoning logically, because you can know for sure that she has to walk to school
- Logical reasoning is **valid**: you know for certain that is correct.



Teachers Evaluation and Handouts

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17	Example 8	- For a long time, people thought that all swans are white. - More and more observations of white swans were made, and people became sure that all swans must be white. LO: Practice with inductive inferences.	1 (42)
18	Example 8 continued, definition of inductive inference	- But then a black swan was found, immediately showing that it was false to claim that all swans are white. - Just because something is very often the case doesn't mean it's always so. LO: Learn how inductive inferences work.	2 (44)
19	Example 9	- Do all swans have long necks? Leave a bit of time, but not too much. - Can we know for sure? LO: Practice with inductive inferences	4 (48)
20	Recap	- An important part of logical reasoning is to know when we can be sure about a conclusion and when we can't. - Even the best scientist can't find out what the world is like just by reasoning in an armchair. - They have to go out and observe the world and see the swans! LO: Recap what deductive and inductive inferences are like.	3 (51)
21	Example 12	Ok, let's have one more! - Manchester United beat Everton - Everton beat Newcastle. - Your friend says that Manchester United will therefore beat Newcastle. - What do you answer? Ask pupils until someone says that it can probably be so, but we can never know for sure (presumably this happens very quickly). LO: To end with an example that shows the difference between inductive and deductive inferences well.	3 (54)
22	Reflection	- Try to find two things you have learned at school recently: - One that is true for certain (like logical inferences).	6 (60)

		• One that could turn out to be false (like all swans being white). Form small groups and reflect on the topic. LO: To have the pupils reflect on what they've learned and apply it to their existing body of knowledge. To have them leave the classroom with the realization that reasoning and logical inferences are ever-present also in their own school work.	
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