

Learning Activity 2: Prior Knowledge - Truth Relay

Learning Behaviours: Changing prior knowledge

Teacher: JSD **DATE:** 9/5/05 & 1/6/05 **Class:** 8C

Truth relay

Below is a series of statements that relate to the topic of light and the way that we see. Some of the statements are true and some of them are false. Your task is to place them under the headings true and false based on what you currently believe.

True

False

- Light travels in straight lines.
- Light can travel around corners.
- Light only travels a short distance from a candle and then stops.
- Light is a form of energy.
- Light bounces off smooth, shiny surfaces.
- Light does not bounce off non-shiny, rough surfaces.
- Light travels from our eye to the object we look at.
- Light from a bright light travels further than light from a dim light.
- Light travels further at night than during the day.
- Some animals like owls and cats can see in complete darkness.
- Humans can see in complete darkness if we wait for a while for our eyes to adjust.
- White light that we see is made up of many colours.
- Coloured filters (eg. Cellophane) add colour to white light.
- Light travels from an object to our eyes.
- If we see a light source then light from that source must have reached our eyes.

Discussion Tool: Comparative discussion

Following the second attempt at this task at the end of the unit I got the students to reflect on the following questions in their journals.

1. What were some of the idea's that you changed your mind on?
2. Pick one of the statements you changed your mind on and explain what made you change your mind.
3. Are you still unsure about where to put any of the statements?

The next step would be to try and collate their answers and see if the group as a whole change their beliefs on any point in particular. This could be used to

further discuss exactly what it was that we did that got them to change their mind and why it was effective.

Student Comments

Students made the following comments about how their ideas changed.

- I changed my mind because I now know that light can only travel in a straight line. (Light can travel around corners)
- I didn't change my mind. (He did on many of the statements)
- Alex changed my mind.
- Light can only travel in straight lines because it can't travel around corners.
- I said light travels further at night than during the day but now I say it's false. It's only at night you can see the light beams better.

As you can see the question weren't really that deeply thought about and we had quite a rushed finish to the term and didn't get time to discuss their idea's further. Next time I would phrase the question differently to:

Pick one of the statements you changed your mind on and explain what we did in class that made you change your mind.

Second go:

To the question, "Why do you think we did the exercise twice?"

'to know what you knew then and what you know now"

'to see what we learnt'

'to see if we gained any knowledge through the topic'

'to see improvement in our work'

'the teacher wanted to see if we had gained any new knowledge throughout the topic'

'to get the ones we got wrong right'

'to try and put together what we learnt in class and to think of what we used to think compared to know'

'to see if we changed our mind about any of the points'

'to see if we improved our knowledge'

After re-wording the question to 'Choose one or two statement that you changed your mind on and try and tell me what it was that we did in class or talked about that changed your mind.' Students made more specific comment that mostly related to practical exercises that we did to prove some of the statements.

Eg. I now know light can't travel around corners. I know this because to the experiment we did with the rubber tubing.

To the question, 'what did you learn from this?'

'a lot'

'that light bends in water'

'that I changed a lot of my idea's'
'that I learnt the differences'
'at the start I didn't know anything, but now I know lots'

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Teacher Journal

What is my intention? What do I want to achieve?

I wanted to establish what students already knew or though they knew about the topic light by giving them a series of statements (some true, some false) about the topic, a true/false relay. I gave them no real direction about the task, I told them that for the moment there is no right or wrong, they should just go by their own beliefs. We then did the same task at the end of the topic. I then got them to compare their answers and to determine what idea's they had changed and I asked them to state why they changed they changed their beliefs. I also got them to make a comment if they thought we hadn't covered a particular statement during the topic.

What happened?

Most students took to the task well. There were a few frustrated that their were no correct answers and quite a few arguments broke out about wether some statements were true or not. Most kids had strong beliefs about what they thought happened and were pretty confident they were correct. There were a lot of common misconceptions.

What was my role?

I tried not to give too much away. Sometimes I had to go through a statement with some students because they didn't understand the meaning, but most were pretty good.

What feelings and senses surround the event?

The students were enthusiastic and quite competitive on the first go. On the second go, there was less discussion, a lot more kids were more sure of their answers.

What was I thinking? What was I feeling?

I thought the task worked well. It generated a lot of discussion and was a great way to start a topic. It also summed the topic up quite well. Most students realised how much they had actually learnt by what they changed their opinions on. When I challenged a few kids on their results they came up with some really good arguments.

What were the important elements of the event?

The task was simple enough and the fact that I said there were no right or wrong answers made students more confident to take a risk.

What was the outcome?

Most kids had quite a few changes. I think I broke quite a few of the common misconceptions. There were a couple of students who still actually had more incorrect which was a bit of a worry, but when questioned, they had the correct idea's but took the statement the wrong way.

What do I think the students got out of the event?

I think the students got the feeling that they had actually learnt things by the end of the task and it also allowed them to express their prior knowledge.

What might I change next time around?

Not a lot. The topic was a bit rushed so ideally I would like to spend a bit more time on the actual topic so that I could more closely address some of the statements. I actually forgot about some of the statements and didn't address them directly at all. I got the students to make comment on this in their journal so that I could improve on that next time.