NUFFIELD PRIMARY HISTORY

FLIGHT AT KS1 (CROSS-CURRICULAR TOPIC)

SESSION 1 THE STORY OF ICARUS

The teaching took place in an Exeter First School with a split Year 2/3 class. The older Year 3s formed a full class next door, while the younger Year 3s were in with the Year 2s. I worked with the class for a full morning a week over five weeks.

Andrea, the class teacher, had chosen the cross-curricular topic of 'Flight'. We planned the teaching together, to include science, history and technology, as well as literacy, particularly speaking and listening. The history element of the teaching was done mainly through storytelling. The stories ranged from myth (the story of Icarus) to Amy Johnson's solo flight from England to Australia. The idea was to give the children an overview of the development of flight, while also going into depth with the storytelling about a few special flying events.

This account describes the first session of the topic. During the lesson the children were introduced to some challenging scientific concepts, going beyond the National Curriculum for science.

Class/Year group and Time

Year 2/3, mixed gender and ability, 29 in the class. The Year 2s were in the majority. One whole morning session.

Learning objectives

History

For the children to:

- understand the difference between fact and myth
- appreciate that humankind's desire to fly has a long history
- retell the story of Icarus (also literacy/speaking and listening).

Technology

- For the children to think creatively about the design and functioning of a pre-modern flying machine, and to communicate their ideas through drawing.

Science

For the children to:

- understand why the Icarus myth cannot be true
- find out about familiar things such as air (the earth's atmosphere)
- be introduced to scientific concepts such as temperature in relation to altitude, and the need to take into account the power-to-weight ratio when humans try to fly using large wings.

Key questions

Long ago in the past, how did people try to fly?

Is the story of Icarus and Daedalus true?

Resources

The story of Icarus and Daedalus. This is widely available in libraries and topic books. See also:
http://www.historyforkids.org/learn/greeks/religion/myths/daedalus.htm

A set of pictures from the story of Icarus and Daedalus.

Pictures of snowy mountain peaks, and specifically that of Mount Kilimanjaro.

Picture of rainforest at the foot of Mount Kilimanjaro.

A picture of the mediaeval attempt to fly from the top of the leaning tower of Pisa (in the Ladybird book *Flight*).

You can find good information about the Earth's atmosphere at:
http://en.wikipedia.org/wiki/Earth's_atmosphere

The teaching

Episode 1

Focus: Creativity and technology – designing a flying machine.

We began with a general class discussion about flying – I wanted to ascertain what the children knew and thought. I then introduced the historical dimension, with the idea of trying to fly without an engine to supply power. I asked: *If you lived long ago, before motors and man-made materials were invented, how would you fly?*

Excited chatter broke out. We described the challenge: to design a flying machine that could have been built 3000 years ago. We discussed the kinds of materials that would have been available then, gave out paper, pencils

and crayons, and added that each child had to say ***how*** his/her machine worked – what made it fly.

The children drew away happily, then labelled and/or captioned their inventions.

Several children designed wings strapped onto a person's arms, which led nicely into the story of Daedalus and Icarus.

Episode 2

Focus: Storytelling – Daedalus and Icarus.

We sat the children on the carpet and I told the story of Daedalus and Icarus. Some of the children had heard the story before, and enjoyed putting in extra details.

Afterwards, I posed the question: *Do you think it's a true story?* We took a vote, and all but two children thought the story was true. The entire class also believed that a person could fly close enough to the Sun to burn – to them it made complete sense.

I had to explain what a myth was, and tell them that the story of Icarus was definitely not true – and that after break I would try to prove it to them.

Episode 3

Focus: Science concepts - explanation and discussion.

I had prepared pictures to help illustrate the reasons why the Icarus story could not be true. When the class returned from break, we spent a good twenty minutes on explanation, evidence and intense discussion.

First, we introduced the concept that it grows colder as one goes higher into the atmosphere. As evidence, I showed the class pictures of high mountains with snowy peaks. They were especially impressed by Mount Kilimanjaro, situated on the hot Equator: it has rainforest on its lower slopes, but snow on the summit. I also told them that pilots of small planes reported ice forming on their aeroplane wings as they flew higher.

Next, we looked at *why* it grows colder as one flies higher. I explained that the Earth is surrounded by a 'blanket' of air, its atmosphere, which keeps in some of the heat from the Sun. It is several kilometres high, and the higher one goes, the thinner the 'blanket' of air becomes.

We also tried to explain just how far away the Sun is from the Earth, with the help of diagrams and different-sized balls. (If the Sun is a beach ball and the Earth is a pea, they are 130 metres apart.) There is a very great deal of empty (airless) space in between Earth and Sun! This would be another problem for Icarus: no air to breathe or to support his wings.

Episode 4

Focus: More science concepts - further explanation and discussion.

We moved on to discuss the reason why people cannot fly wearing wings like a bird's. I told the story of the mediaeval man who tried to fly from the leaning tower of Pisa wearing giant wings. I also told them of the many other attempts to fly wearing bird-shaped wings.

The major problem with these attempts is that our bodies are relatively too heavy for the wings. One boy suggested that a baby's body would be light enough to be carried by large bird's wings, if the baby was strapped to them. This led to a discussion about how the difficulty with this would be that the baby's arms would not be nearly strong enough to lift the wings, let alone flap them.

The lesson ended with thoughtful faces all round.

(Note that we were discussing the idea of wings similar to a bird's. Hang-gliders work on a different principle).

Later, the children sequenced the pictures of the Icarus story, pored over stories of Icarus in topic books and wrote accounts of the myth in booklet form.

Learning outcomes

The children:

• thought creatively about the design and functioning of a pre-modern flying machine and communicated their ideas (design and technology)

• were able to retell the story of Icarus either through sequencing pictures or in writing (history and literacy/speaking and listening)

• discussed the concepts of truth/fiction and myth (history and literacy)

• considered scientific concepts such as temperature in relation to altitude; the need to take into account the power-to-weight ratio when humans try to fly using large wings; the Earth's blanket – its atmosphere; and the great distance from the Earth to the Sun.

Reflection/evaluation

We reproduce class teacher Andrea's reflections on the session:

We started with the story of Icarus, and quite a lot of time was then spent discussing whether it was a true story and whether you could really fly as far as the Sun, then we started talking about the [relative] position of the Sun and the Earth and they now understand that you couldn't actually go that high or that far from the Earth because you'd disintegrate and only rockets can go that far. That was what I was after, the relationship of us in Space, so that came out quite well.

The children enjoyed the story of Icarus particularly because a lot of them had heard it before so they could chip in their little bits, but they hadn't thought about whether or not it could be true and whether you could actually make wings and do that – they hadn't really thought it through and it was that bit that I was particularly pleased with. It did make them think because, quite a while after, they would come up with different theories and questions about, 'Well, what happens if …?' Or, 'Could we do this?' Or, 'How high do aeroplanes go?'

Nuffield Primary History project

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