# The Scientific Method

Every year in the spring, large numbers of frogs appear in the mud near the river Nile. They aren´t there in dry weather, so in the past ancient Egyptians used to believe that the mud produced the frogs. The problem is they didn´t test their belief scientifically.
The first step in the scientific method is to **observe** the world around you. For example, Newton noticed that an apple fell down, not up. The Egyptians did this part alright. Not all observations can be done directly by your senses. Some observations require the use of an instrument.
Step two is to ask yourself a question based on observations. "Why does the apple go down?" "Where do the frogs come from?" Then you start interpreting your observations, deducing or making an **inference**.
One day you may find a possible answer - a **hypothesis**. "Objects are pulled to the ground by an invisible force." "Mud produces frogs."

*To continue, use one of the following words to fill in the gaps.*
***conduct conclusions confirmed enough found masses may rate***

But it isn´t [1]_____ just to think of an answer to a question and believe it´s true. You have to discover some evidence that confirms your hypothesis. So, next step is to **test your ideas with experiments** and more observations. Galileo believed that two objects with different [2]_____ would fall at the same [3]_____. So, the story goes, he carried out an experiment. He dropped a heavy ball and a light ball from the Leaning Tower of Pisa, and [4]_____ his belief. The Egyptians never did any experiments on their mud-frog hypothesis, so they never [5]_____ out it was false.
If you do an experiment only once, you [6]_____ make a mistake. So you need to repeat your experiments to make sure you get the same results, and **analyze** your findings statistically to check they are significant. You also need to make any necessary changes to your hypothesis and [7]_____more experiments. Carefully record everything you do so other scientists can duplicate your work and check your [8]_____.

*Here are some more words to complete the last part of this text:*
***Accept evidence field float law predictions***
A hypothesis with lots of experimental [1]_____ becomes a **theory.** A theory which has been confirmed many times is **a scientific law**. The great thing about hypotheses, theories and laws is that you can use them to make [2]_____. The [3]_____ of gravity predicts that astronauts should [4]_____ in space. And they do.
Chemists and physicists, geologists and biologists, researchers in every laboratory in every [5]_____ of research use the scientific method. They do not [6]_____ untested observations.

*Task Name some instruments which are used in your field.*

*Adapted partly from the text in Maturita Activator, Pearson Education Limited, 2009*