



Lion vs baby

An online video shows a lion trying to attack a baby dressed in a zebra-striped hoodie.

Don't worry! The lion was behind very thick glass and the baby didn't seem to mind at all.



The ultimate predator?



goo.gl/hP5qj

Scan the QR code or type in the web address to watch the video.

What features does a lion have that make it a good predator?

Extra: How is a (real) zebra adapted to escape its prey?

The gnome experiment

A gnome is travelling the world with just a set of very precise scales to keep him company. No, this is not the plot of a strange film but an experiment that aims to measure gravity at different places on earth.



When the gnome is put on the scales gravity pulls him down. The reading on the scales is highest where there is more gravity.



goo.gl/WqQzO

View the results by scanning the QR code: where on Earth is gravity the highest?

Extra: The scales measure the *mass* of the gnome in grams. How is this a measurement of gravity?

Astronomers find another solar system

It is thought that nine planets orbit a star called HD10180. The solar system is a long way away – 127 light years. One light year is 9.5 million million km!



The star HD10180 is quite similar to our Sun

What are the similarities and differences between this one and our Solar System?

Extra: There could be life living on one of these planets. What must the conditions be like for this to be possible?



Teacher guide

- This resource has been written for students aged 8-12 and links with the KS2 and 3 science curriculum. It can be used as a poster, homework task or extension activity.
- Each story has two questions. The 'extra question is designed to get the students thinking in more depth or apply their knowledge from other areas of the curriculum.
- Students can use mobile devices such as phones or tablets to scan the QR codes (using an installed app). This will take them directly to the webpage. Alternatively, they can type the shortened URL into a browser.

Lion vs. baby

Answers:

A lion has claws to grab onto prey and sharp canine teeth to tear flesh. It has good eyesight and sense of smell. It can run fast and has a pale coat to camouflage into the savannah where it lives.

Extra: Physical adaptations: A zebra has excellent eyesight and hearing to notice predators and escape. They have long legs to run fast. Their stripy coats are camouflage as they break up their outline.

Behavioural adaptations: Live in herds which offers some protection from predators as they can warn each other of predators and run together to offer each other protection.

The gnome experiment

Answers:

Gravity is highest at the poles and weakest at the Equator.

Extra: The force of gravity on the gnome pulls it down onto the scales. The higher the pull of gravity, the higher the reading (KS2). On Earth every 1 kg of mass has a weight of around 10 N due to gravity (although this is slightly different depending on where you are) (KS3)

Astronomers find another solar system

For further information on this story see <http://goo.gl/B05NI>

Answers:

Similarities: Star which has planets orbiting.

Differences: Star is different size and brightness, nine planets (our solar system has eight)

Extra: The planet has to have liquid water. It cannot be too close or far away from its star and lie in the habitable, or goldilocks, zone.

For further KS2-5 science lesson ideas and free resources based on topical stories please visit the Snapshot Science blog: www.snapshotscience.co.uk

SPIDER-GOAT, SPIDER-GOAT...



Credit: theprodgal/united3g @ Flickr

...does whatever a spider-goat does.

Can she swing

from a web?

No she can't

she's a goat...

...however, she can produce spider silk proteins in her milk

THE STORY

You may have watched the Horizon programme *Playing God on BBC2* on Tuesday, and if you didn't there is still time to catch it on iPlayer. If you are teaching about genetic engineering it is well worth spending time watching it as it covers some amazing uses of this branch of biotechnology.

Despite the range of 'synthetic biology' examples out there, in this post I have decided just to concentrate on the spider-goats, the transgenic poster girls of the moment.

Spider silk is incredibly lightweight yet strong. It is five times stronger than steel of the same diameter. It is also biodegradable and compatible with the human body. This amazing material has a myriad of applications in industries as diverse as space flight, fashion and neurosurgery.

There is no wonder that biotechnology companies have been scrambling to find a successful way of mass producing it over the past few years. Attempts have included farming spiders (fail - they tend to eat each other), and the genetic modification of different organisms such as tobacco plants, before Nexia Biotechnologies was successful with the modification of goats that expressed the silk proteins in their milk. The spider-goat was born.

TEACHING IDEAS

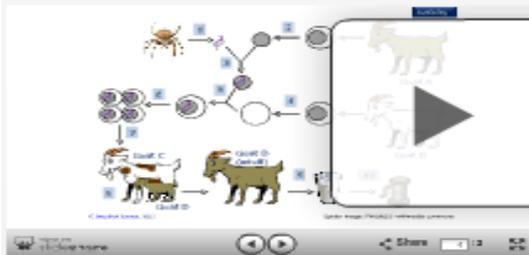
A novel material

Silk is a natural polymer so you could use this as an example when teaching about materials in GCSE chemistry. Can the students match up its uses to its properties? For example, it could be used instead of nylon in fishing lines because it is strong but biodegradable and therefore better for the environment.

As I have already covered, silk has properties that often mean it is a better choice of material than its more traditional rivals. Students can research into the advantages and disadvantages of silk compared to another material for a range of applications.

Genetic engineering

The actual process by which the goats were created is an example of genetic modification. This resource can be used to teach the method and can be used with KS5 students when studying recombinant DNA or as a way of extending the more able at GCSE.



download

Students are given slide 2 printed out as cards. They have to use the diagram on slide 1 to put the statements in the correct order to show the method used. Slide 2 contains some extension questions.

Ethical questions

Of course, there is scope for an ethical debate on this and other examples of transgenic animals. As the scientists 'playing God' (as the title of the Horizon programme mentioned suggests) and what opinions do your students have about the ethics surrounding the spider goats?

WEBLINKS

Video clip of the Horizon programme showing the spider goats.

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