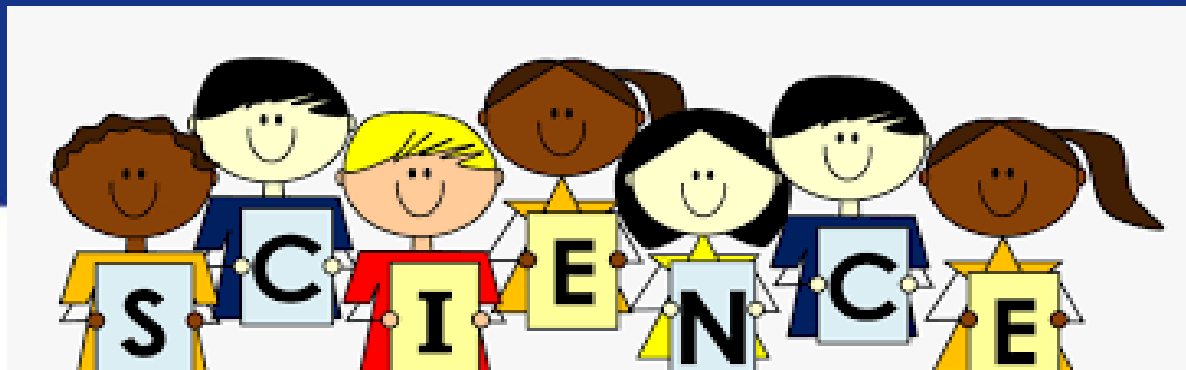


**GRADE 5
TERM 3
ADAPTED: THE RATP FOR 2021**

ENERGY AND CHANGE



ENERGY AND MOVEMENT (1 week)

Elastic and springs.

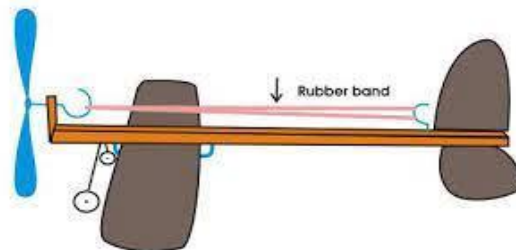
New words:

Elastic – A material that returns quickly to its original shape after it has been bent or stretched.

Compress – Squeeze or push the parts of something together.

Ways of using stored energy to produce movement energy.

We can use elastic bands and springs to move things. Before they can move things, we need to either twist the elastic or stretch it. For example, the elastic in an aeroplane is twisted and will make the propeller on the toy aeroplane spin around. The elastic in a catapult is stretched and will shoot an object off the catapult.



ENERGY AND MOVEMENT (1 week) cont.. Activities



Stretching an elastic band

- When we stretch an elastic band, we store energy in it.
- This is because when the band is stretched, it can do work when you release it.
- We are going to look at some other ways of using **stretched** elastic bands to do work and produce movement.

Suggested Activities: GDE Gr. 5 Lesson plans 2019
Refer to pg. 261 - 268

Making a catapult

Sources

Thunderbolt Kids (5B)
Refer to pg. 43,44,45
Platinum
Refer to pg. 144,145

ENERGY AND MOVEMENT (1week) cont... Activity

We saw in the previous activity that if you stretch an elastic band, you can produce movement. The stored energy in the band - when it is stretched - has the potential to do work. We call the stored energy in the elastic band potential energy because it has the potential to do something for us later. But what does the word potential mean?

The definition for 'potential' given in the dictionary states:

Potential is having the capacity to do or develop into something in the future.

Synonyms are possibility/feasible.

A stretched elastic band can also produce movement and do work in the future when it is released. Let's look at another way of using an elastic band to produce movement energy.

Instead of stretching it, we can **twist** the elastic band.

Suggested activity - Source:

How to build an elastic band powered boat.

Thunderbolt Kids (5B)

Refer to pg. 46,47,48

We saw in the previous activity that elastic bands that are stretched or twisted store energy. The stored energy can be released as movement energy when the elastic band is released and returns to its normal shape.

ENERGY AND MOVEMENT (1week) cont...

Energy and movement – Springs

- We have been looking at elastic bands and how they can be stretched or twisted to store energy to do work (to produce a movement)
- Springs can also be compressed or stretched to store energy.
- When you stretch a slinky spring, it stores energy.
- When the spring is released, the stored energy is changed into movement energy as it springs back into place.
- Springs can also be compressed to do work.
- To compress something means that you squash it!
- Look at the photo below of a child jumping on a pogo stick.
- This pogo stick works using a compressed spring.

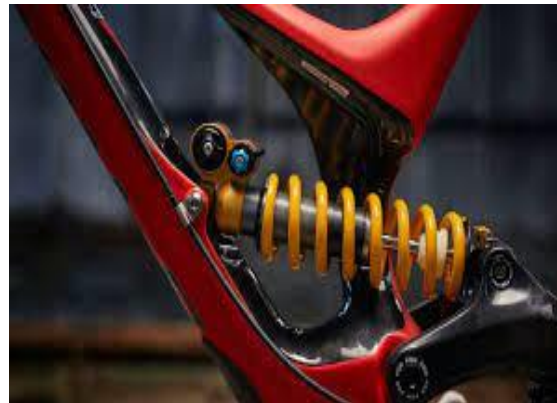


Children jumping on a pogo stick

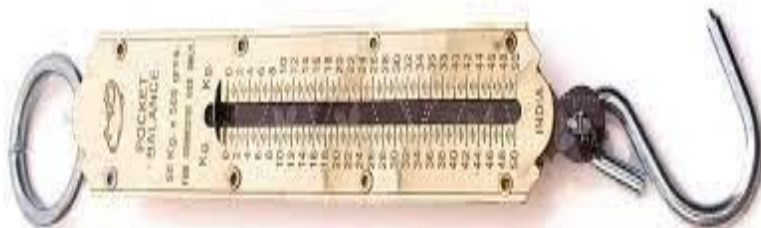


ENERGY AND MOVEMENT (1week) cont.. Activity

Household items that use springs –weighing devices / scales, clocks and watches, door-closing springs, light switches, electric bells mattresses, chairs, toys, car and bike suspension



Interesting Uses of Springs



MOVEMENT AND ENERGY (1 week)cont.. Activity

Suggested activities - Sources

GDE Gr. 5 Lesson plans 2019

Refer to pg. 269- 285

Platinum

Refer to pg. 148

Thunderbolt Kids (5B)

Refer to pg. 51

Acknowledgement – videos, pictures and information

- Formation of fossil fuels (video) – goo.gl/y04lH (Source: Sasol Inzalo Books)
- How fossil fuels are made (Video) – goo.gl/rxiVG (Source: Sasol Inzalo Books)
- Burning Food as fuels – <https://youtu.be/RHoVqQbOns4>
<https://youtu.be/HO6twUJa5vE>
- Candle / Oxygen Experiment – <https://youtu.be/fcXL28NMPYQ>
- Burning substances in air and pure oxygen (video) – goo.gl/sEV5g (Source: Sasol Inzalo Books)
- Additional Resources Video on Energy – <https://nect.org.za/materials/natural-sciences-technology/term-3/content-videos/grade-5/different-sources-of-energy-using-energy-responsibly-educational-video-for-kids.mp4>. (18minutes in length) Can be used as revision.
- Interactive Circuit Building Website:
https://phet.colorado.edu/sims/html/circuit-construction-kit-dc/latest/circuit-construction-kit-dc_en.html

Acknowledgement – cont.....

- Making electricity from coal (video) goo.gl/Hzu5V and goo.gl/scUhl (Source: Sasol Inzalo Books)
- Electricity generation (video) – goo.gl/32irY (Source: Sasol Inzalo Books)
- Interactive site about electricity – goo.gl/mrFiy (Source: Sasol Inzalo Books)
- Pictures for building the elastic powered catapult and boat - <http://www.thunderboltkids.co.za/Grade5/>
- Elastic Potential Energy - https://www.youtube.com/watch?v=G_22yf_gJyg
- A slinky is a spring. <http://www.flickr.com/photos/mwichary/2140389736/>
- Slow motion slinky spring (video) goo.gl/FwlFL
- How does a Jack in the box work - <https://www.youtube.com/watch?v=liTdEuQiMXg>
- What is elastic Potential Energy - <https://www.youtube.com/watch?v=rLgfeKbTBII>