P1. 2.2 Conservation of Energy

Year 9

Week commencing 16th April 2012

Title: Useful energy

Objective: Be able to apply understanding of energy transfer to situations of energy wastage

- I must be able to identify situations in which energy can be wasted
- I should be able to understand how friction causes a car to brake
- I should be able to apply my knowledge by answering 6 questions correctly

Starter – 5 minutes

- Draw a cartoon of an aeroplane journey.
- Write on the energy changes taking place e.g. gravitational potential, kinetic etc.
- Where has all the energy from the fuel gone?

Last lesson we learnt

- That energy can never .....

- That in a bungee jump, the energy ....
  ....
- We touched on the issue of ‘lost’ energy that is not really lost but just changed into something that is not useful. An example is .....

Wasted energy

- Energy is often transferred to non-useful forms such as heat (e.g. In a lamp)
- Energy is often wasted more in old machines meaning they use up more electricity or fuel and are therefore expensive to run.

  – Can you think of another example from our learning on conduction, convection, radiation where heat loss is an example of wasted energy?


192
745
119
530
283


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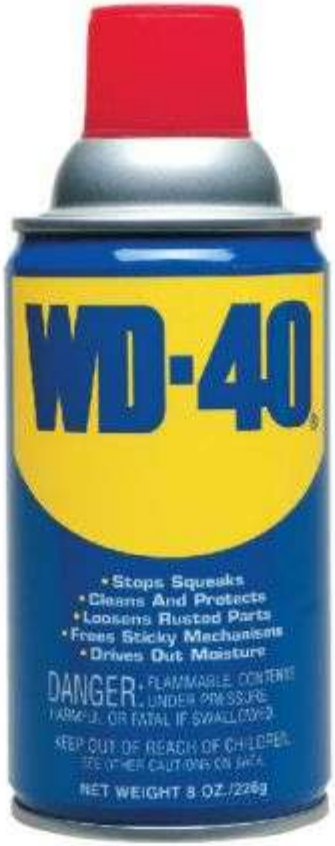

WD-40
• Stops Squeaks
• Cleans And Protects
• Loosens Rusted Parts
• Frees Sticky Mechanisms
• Drives Out Moisture
DANGER
NET WEIGHT 8 OZ./226g

Friction

- Friction is a force that is occurs when things rub together.
- Air resistance is a form of friction.
- Friction often causes the objects that are rubbing to get hot.
- Energy is therefore wasted as heat.

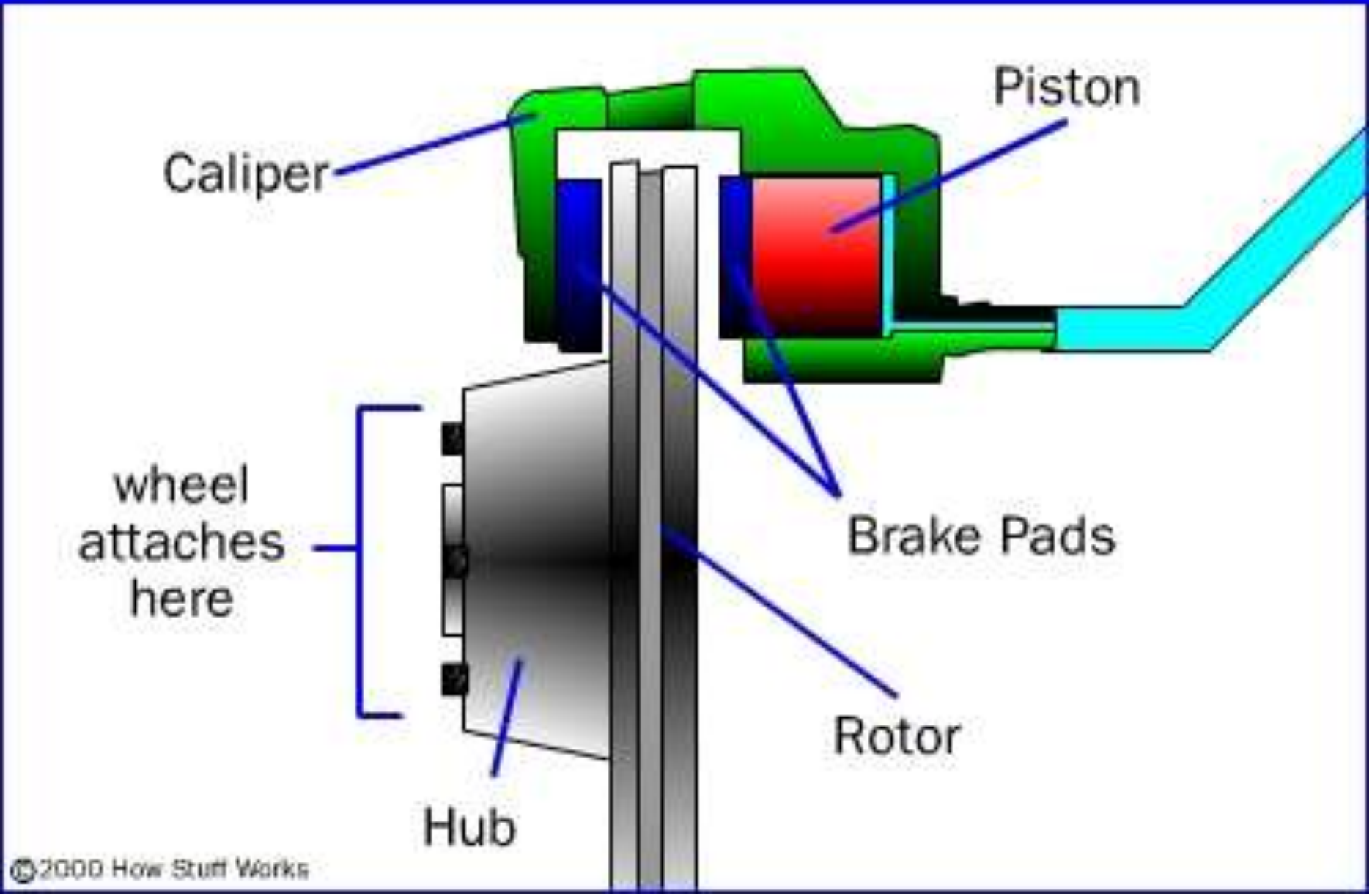
- Streamlining can reduce friction and therefore reduces …….

Friction can be useful

- Car brakes use friction to slow down motion
- The brake pads are closed against the wheel causing friction between the pads and the wheel

- The kinetic energy of the wheel is mostly transferred to ..... energy.

How a Disc Brake Works



1. Write in your books how energy might be wasted when drilling a piece of wood. Draw the energy transfers taking place with arrows.
2. What is the useful energy and wasted energy involved in a kettle boiling?
3. Why is it useful for Olympic swimmers to wear streamlined swimsuits?
4. Why do snooker balls stop rolling after they get hit?
5. Why do humans not overheat when we do a lot of exercise?
6. How could you reduce heat loss from a car's gear box system?

Over a double page of your books

- Draw an cartoon strip showing a situation where energy is wasted and giving a solution to the problem.

Plenary

- Have a go at the card sort in pairs.