Energy: Wasted Energy

Year 8

Lesson 6

Wasted Energy

- **WALT: Describe where energy wastage takes place and methods to reduce this**

- I must be able to identify situations in which energy is wasted
- I should relate this to the Law of Conservation of Energy
- I could identify ways in which energy wastage can be reduced

We’ve already learnt that energy cannot be created or

……

This is the Law of ……..

Starter – 5 minutes

- Write on the energy changes taking place in a plane journey e.g. gravitational potential, kinetic etc.

- Where has all the energy from the fuel gone?

Wasted energy

- Energy can never be ‘lost’ exactly but can be wasted
- 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.


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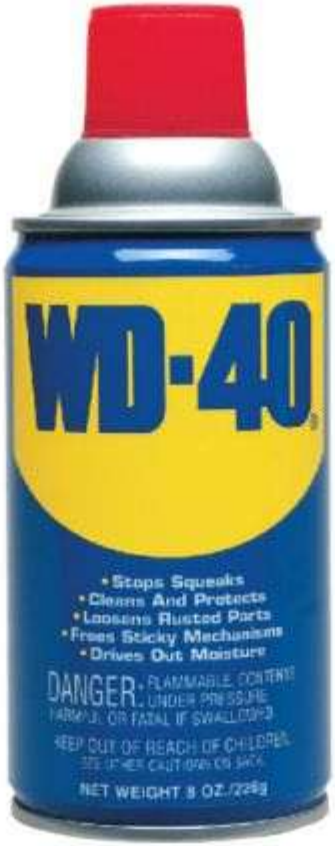

WD-40
• Stops Squeaks
• Cleans And Protects
• Loosens Rusted Parts
• Frees Sticky Mechanisms
• Drives Out Moisture
DANGER
NET WEIGHT

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

……

Be careful…..

- Friction is not an energy type

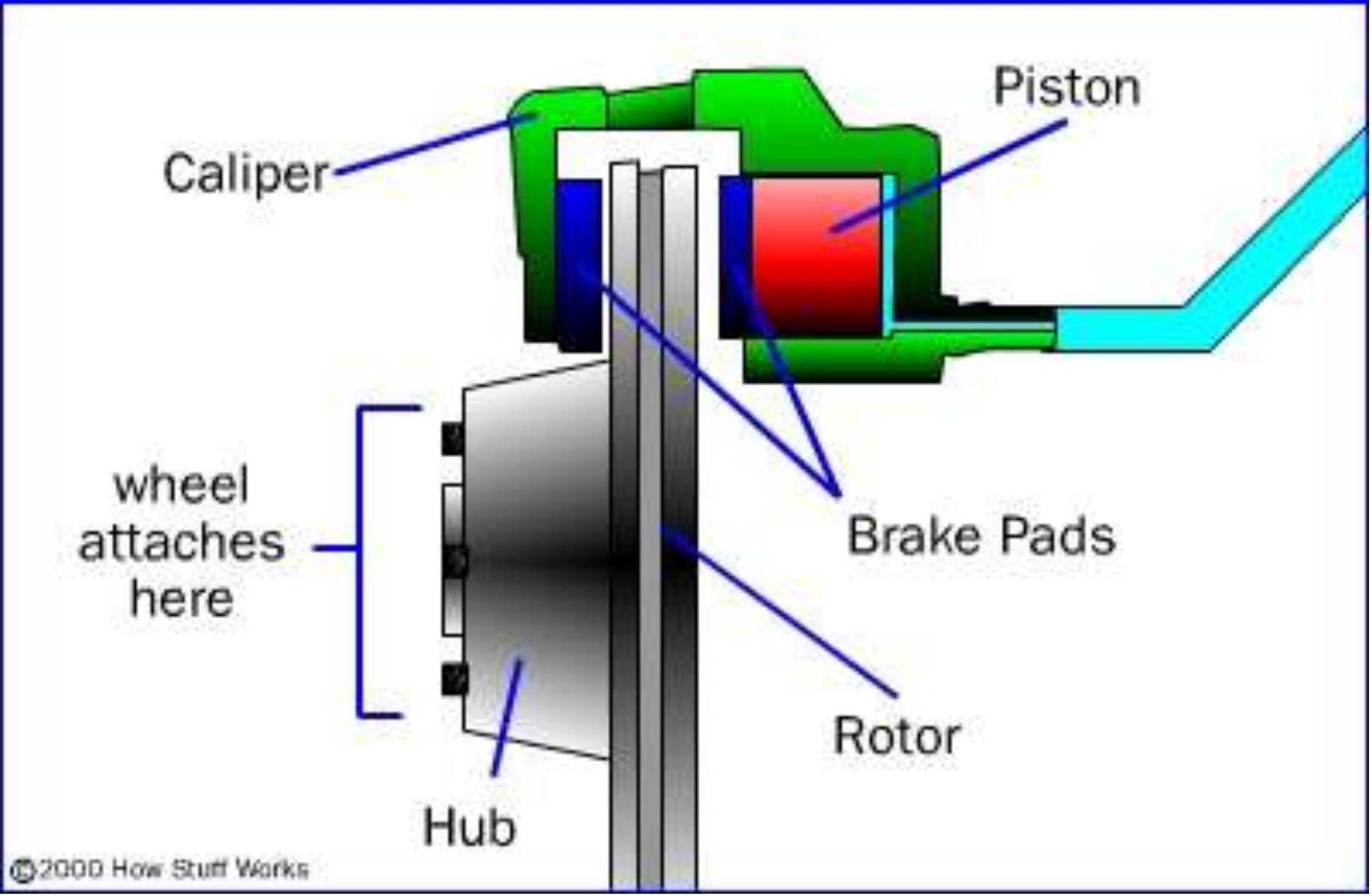
- It is a force that acts on moving objects and causes heat energy to be produced

In pairs, discuss and write down 2 ways in which friction might be useful and 2 ways in which friction might be a nuisance

Friction can be useful

- It stops us slipping when we tread
- 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



Friction can be a nuisance

- It causes wear and tear
- It causes energy to be lost as heat or sound and means more power (e.g. from fuel or your muscles) is needed maintain the speed or action

Around the room are some objects

- Walk around and note down in a table:
  - The starting energy type (e.g. electrical)
  - The useful energy(ies) produced
  - The non-useful energy(ies) produced
- For 2 of the items, write a sentence explaining how wasted energy could be reduced.
- When you are finished, return to your desks and answer the questions on the next slide in full sentences.

1. How does what you have observed in your table relate to the Law of Conservation of Energy?
2. Why is it useful for Olympic swimmers to wear streamlined swimsuits?
3. Name 2 other ways friction can be reduced in machines (p.384-385 will help you)
4. Why do snooker balls stop rolling after they get hit?

Now and prep:

Answer **QUESTIONS 1 and 3 (not 2)** of **Exercise 18.5** on page 276 (Energy Conservation). You will need to read the pages in the book for the information and you will need graph paper.

Plenary

- What were your answers? Swap books and review your neighbour’s.