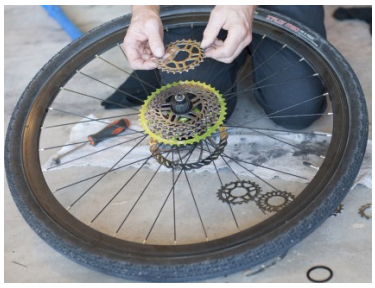
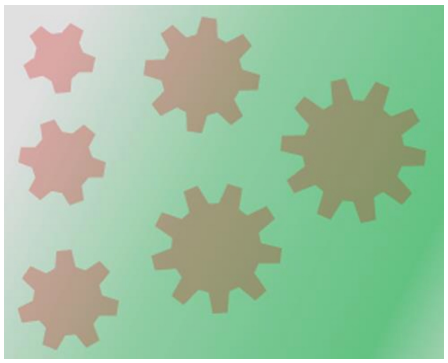
AFRICAN INSTITUTE FOR MATHEMATICAL SCIENCES
SCHOOLS ENRICHMENT CENTRE (AIMSSEC)
AIMING HIGH

TURNING COGWHEELS

Cogwheels are very important for gears in machinery such as clocks, bicycles, cars and engines.

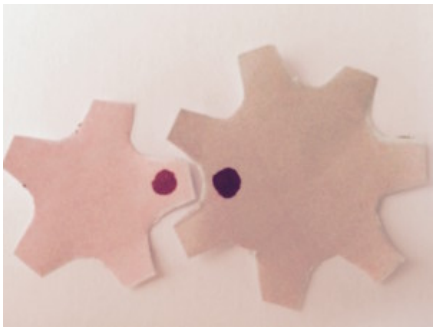


You can experiment with your own cogs made with scrap card or using the template on page 2.



Pick two cogwheels. Place them close to each other so that the teeth fit into the gaps between the teeth of the other cogwheel and as you rotate one it makes the other one rotate. What do you notice about the direction in which the cogwheels turn each time?

Mark a spot on each cogwheel next to each other as shown. What can you say about the way that the teeth of one cogwheel fit into the gaps of the second cogwheel?



What happens to the spots as the cogwheels rotate? Do the spots meet again? If so when, and why?

Will the spot on the 5-cogwheel go into every gap on the other cogwheel?

Now pick two cogwheels with 5 teeth and do the same again. What do you notice? Explain what happens.

Now pick a different pair of cogwheels and do the same thing again.

Does the same thing happen every time whichever two cogs you pick?

Help

Make your own cogwheels from scrap card or cut out some cogwheels from the template on page 2. Follow the instructions and record what happens.

Working with a partner or in a group and help each other. Ensuring that everyone understands before the group moves on.

Extension

Make up some of your own questions to investigate or work on questions posed by another group.