

## Part A - The Physical World



### Make a simple periscope

#### You will need:

2 x small mirrors  
2 x empty juice cartons  
Sticky tape  
Scissors

#### Safety:

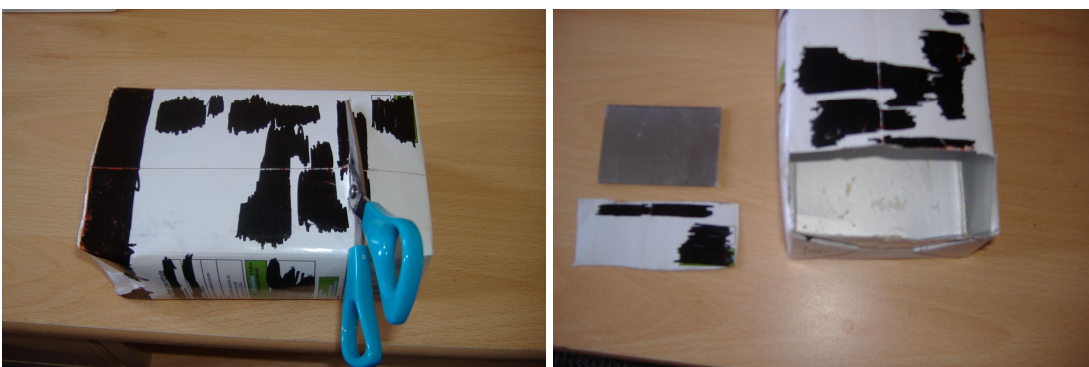
Scissors are sharp, please be careful when cutting

#### What to do:

1. Cut the tops from two fruit juice cartons using the scissors



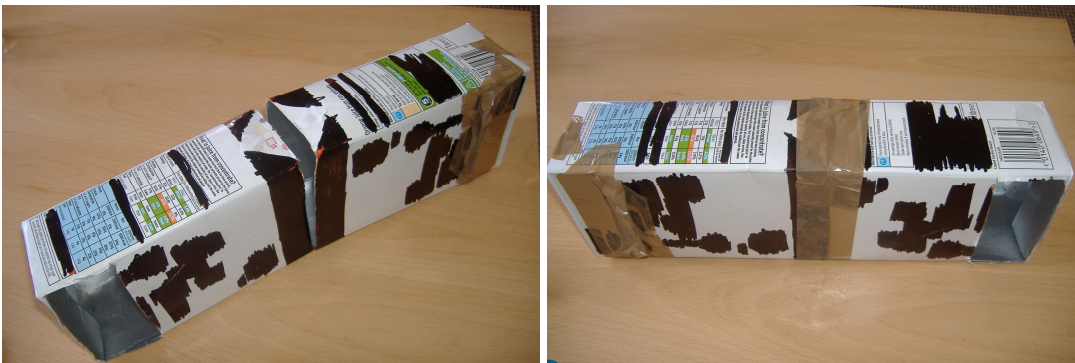
2. Cut a window near the bottom of each carton, making the windows roughly the same size as your mirrors



- Cut a slot in the base of the carton and another slot opposite the window, position them so you can slide the mirror in at 45°. Secure the mirror in place using sticky tape. Do this for both cartons



- Put the two cartons together, top to top, with the two windows facing in opposite directions. Fix in place using sticky tape.



- Hold the periscope up and look through the bottom window, if you can't see through it at first, adjust the angle of the mirrors until you can.

### How Does it Work:

Light travels in a straight line, but by using mirrors you reflect the light entering the top of the periscope down the periscope. The second mirror then reflects the light through the bottom window.

### Further Ideas:

Submarines use periscopes to see above the surface of the water whilst they are submerged. Think about other situations when a periscope could be used and talk about why.