



The Smallpeice Trust
**ENGINEERING
@HOME**

#EngineeringAtHome



Suitable
for ages:
7+

Time
needed:
1hr

The Microscopy Challenge

supported by

SIEMENS
Healthineers 



smallpeice

Dare to imagine

As it's half term, our Smallpeice team have put together five extra-special Engineering@Home challenges, perfect to complete as a family. This is number 3 in the series.

Objectives

- To understand the function of a microscope
- To investigate different samples under the microscope
- To make a microscope and supporting stand

Engineering Themes

MEDICAL IMAGING

<https://www.youtube.com/watch?v=0q9wTyGhqFs>

MICROSCOPY

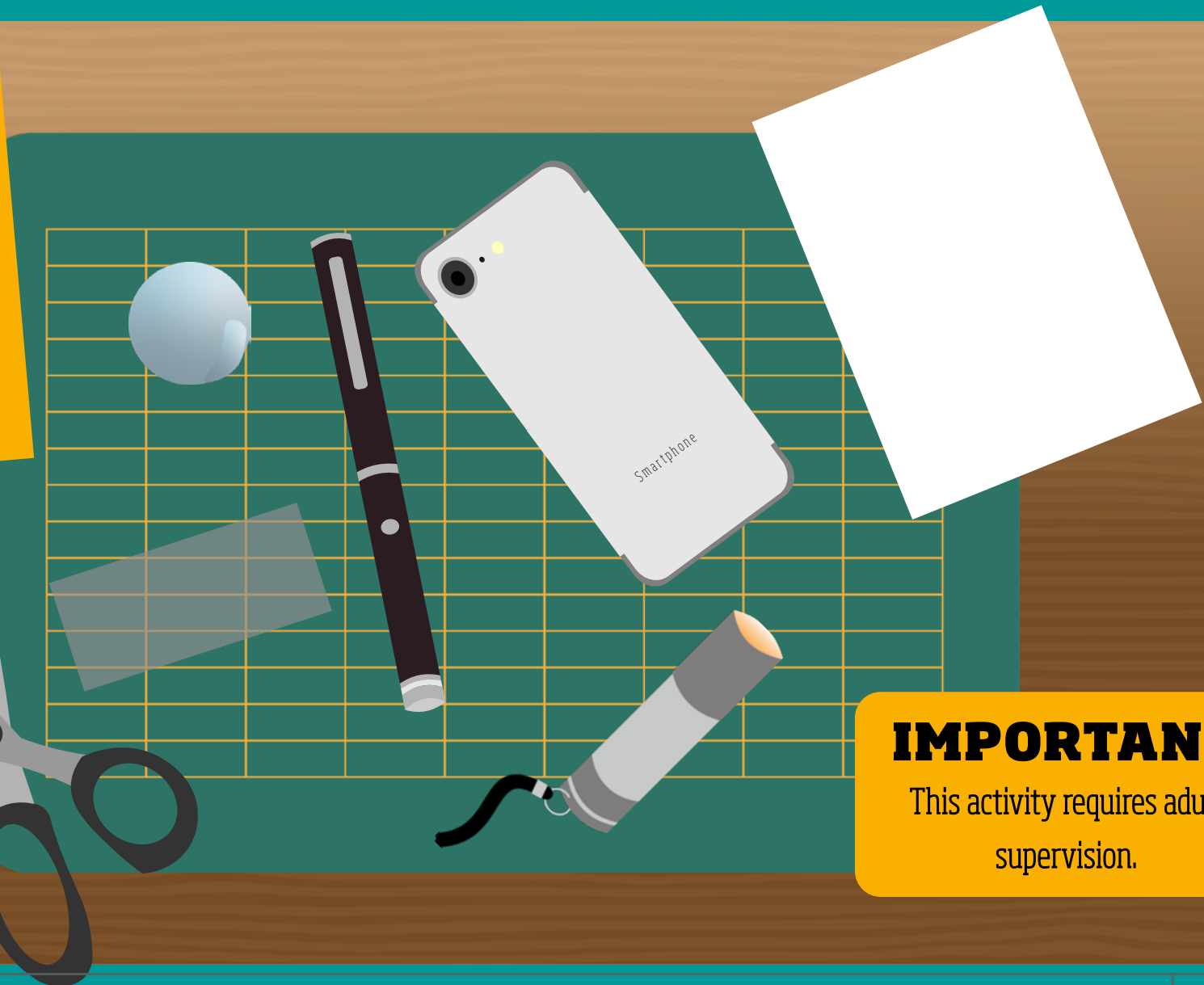
<https://www.youtube.com/watch?v=WIVuogs3VtM>

HEALTHCARE

<https://www.youtube.com/watch?v=o8NIN8dJqdc>

These are the tools and materials and tools we used. If you're missing any items, why not substitute them with something similar? Have a look in your recycling.

- **Laser pen** (these can be bought cheaply online)
- **Paper**
- **Clear plastic**
- **Scissors**
- **Smartphone**
- **Blu Tac**
- **Torch**
- **Samples to test!**



IMPORTANT

This activity requires adult supervision.

HOW TO MAKE THE SMARTPHONE MICROSCOPE

You need to remove the lens from the laser pen before you begin (this is shown in our YouTube tutorial).

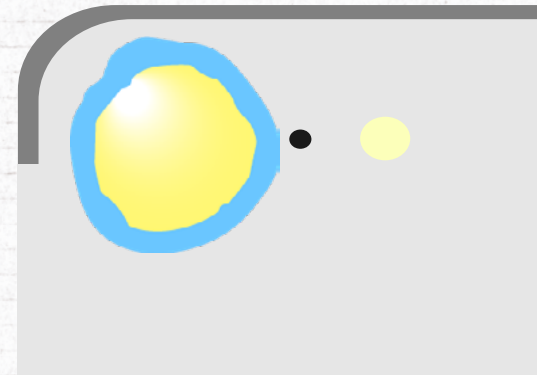
IMPORTANT
Whilst in the camera app, select video and zoom in to the max!

1



Wrap the Blu Tac around the lens. Be careful not to obscure the lens with the blu tac.

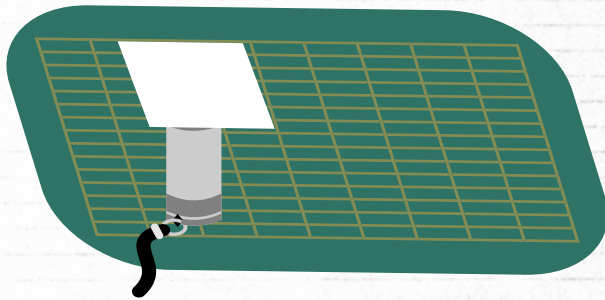
2



Fix the lens onto the smartphone camera. Press down the Blu Tac onto the smartphone to secure it in place.

HOW TO MAKE THE MICROSCOPE STAND

1



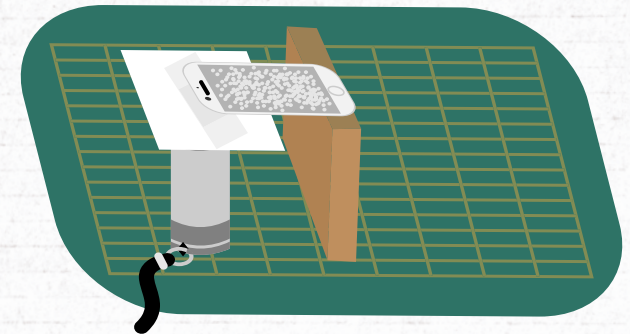
Place the torch facing upwards and cut out a square piece of paper and place that on top.

2



Cut a strip out of the plastic to make a microscope slide. Then cut a small square of plastic to use as a microscope slide cover.

3



Then find items around the house to use to prop up the smartphone microscope to hover the camera over the microscope slide to view your samples!

Need a Challenge?

If you want to challenge yourself further:

1. Build a more complex microscope stand for your new smartphone microscope.
2. See if you can find microbes in puddle water.
3. Research other methods of turning your smartphone into a microscope!

Once you've got your smartphone microscope, film it in action and share your video on:



www.facebook.com/TheSmallpeiceTrust



www.twitter.com/SmallpeiceTrust
Use the hashtag **#EngineeringAtHome**



www.instagram.com/TheSmallpeiceTrust

Thanks again to Siemens Healthineers for supporting this challenge

“At Siemens Healthineers UK, our purpose is to enable healthcare providers to increase value by empowering them on their journey towards expanding precision medicine, transforming care delivery, and improving patient experience, all enabled by digitalizing healthcare.

An estimated five million patients globally everyday benefit from our innovative technologies and services in the areas of diagnostic and therapeutic imaging, laboratory diagnostics and molecular medicine, as well as digital health and enterprise services.

We are a leading medical technology company with over 170 years of experience and 18,000 patents globally. With about 50,000 dedicated colleagues in over 70 countries, we will continue to innovate and shape the future of healthcare.”

Find out more at www.siemens-healthineers.com/en-uk/

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