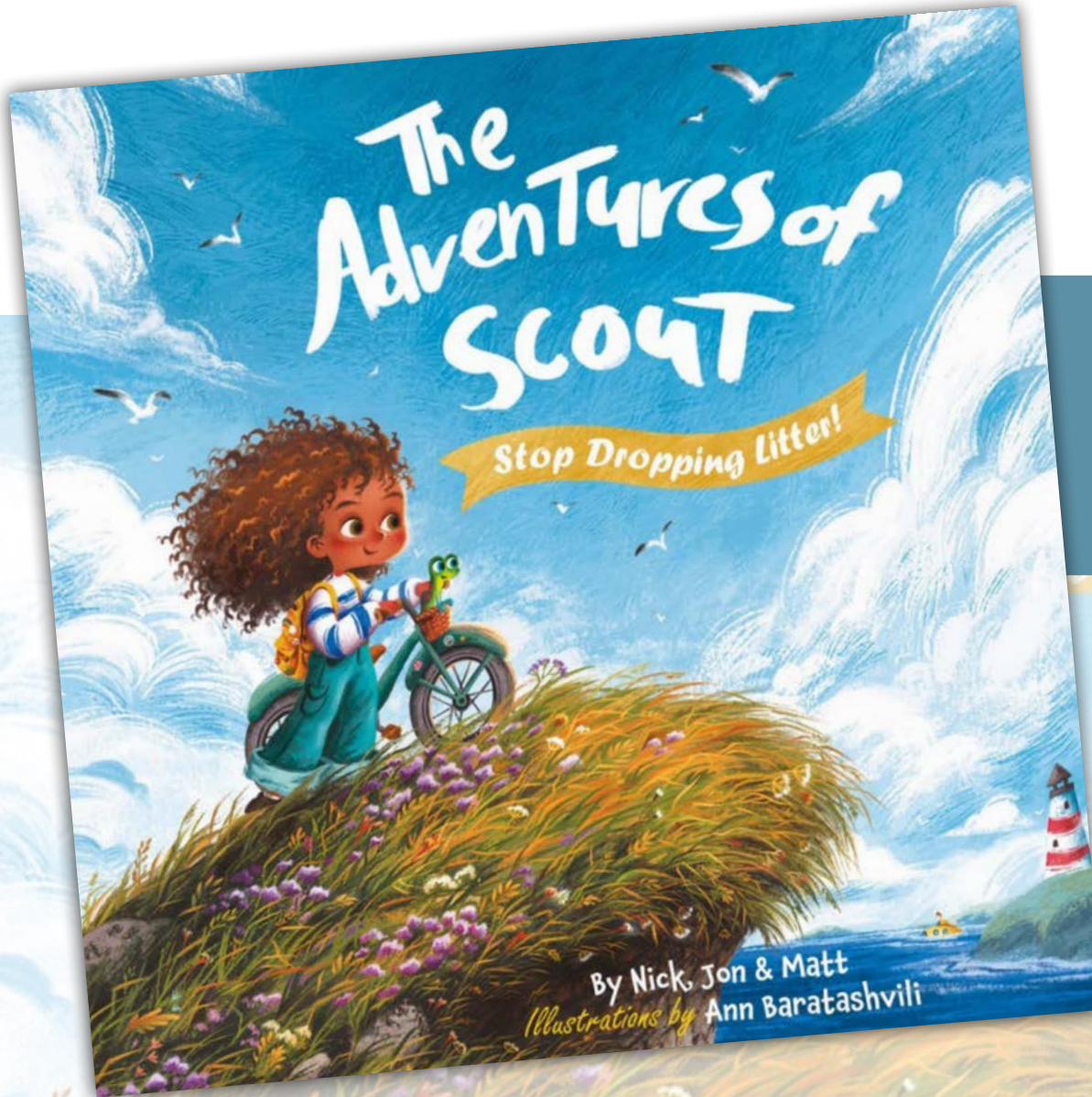




STEM By The Book

The Adventures of Scout – *Stop Dropping Litter* Nick, Jon and Matt

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Experiences and Outcomes

Through creative play, I explore different materials and can share my reasoning for selecting materials for different purposes. **SCN 0-15a**

Through exploring properties and sources of materials, I can choose appropriate materials to solve practical challenges. **SCN 1-15a**

I explore everyday materials in the creation of pictures/models/concepts. **TCH 0-10a**

I can recognise a variety of materials and suggest an appropriate material for a specific use. **TCH 1-10a**

I can recognise basic properties and uses for a variety of materials and can discuss which ones are most suitable for a given task. **TCH 2-10a**

Resources

Hand lenses

Digital Microscope (Loaned from STEM Ambassadors - <https://resources.stemambassadors.scot/resources/minibeast-kit-digital-microscopes/>)

Selection of natural and recycled materials (sand, sugar cubes or granules, leaves, flowers, dead insects, newsprint, selection of fabrics)

Activities

The Adventures of Scout – Stop Dropping Litter - is a great rhyming book that provides an opportunity for learners to -

- investigate the outdoors and the microscopic world
- understanding of how magnification works
- investigate natural v man-made items

The school playground is a great place to start ... gather in some leaves, twigs, soil, stones, some rubbish

Discussion opportunities

Using a resource like <https://explorify.wellcome.ac.uk> (zoom in, zoom out) encourages the learners to use appropriate knowledge, skills and experiences to describe what they see, what they think the item is and why they think that, giving specific explanation.

Explorify is a free resource for all educators and we encourage you to register.

Invite a local STEM Ambassador in to talk to the learners.
<https://www.stemambassadors.scot>



Using a hand lens/magnifier to investigate

Making your own hand lens and understanding simple magnification

Magnification-1.mp4

What did you notice? Did things appear bigger? This is due to the surface of a water drop curving outward to make a dome. This outward, or convex, curvature bends light rays inward. The result is an enlarged image on the retina of your eye.



Using a magnifying glass or hand lens

There is a skill in being able to use a hand lens or magnifier. Choose an item from your selection of gathered resources and hold the lens slightly above the item. Bring your eye down close to the lens then move the lens up and down slowly until you manage to get a sharp focused image. What did you see with the lens that you could not with the naked eye?

Using the WiFi digital microscope

The following videos will allow you to setup your WiFi microscope on your apple or android device.

[Zoom In Out Install App Android.mp4](#)

[Zoom In Out Install App Apple.mp4](#)

Follow the instructions in the microscope box on how to use the device, making sure you have tested how it works and it's functionality before using it with the learners.

The Adventures of



Challenge

Why not set up a microscope quiz for the learners where they need to replicate a photo you have taken with the WiFi microscope from a selection of items in a tray.

Get the learners to use excellent vocabulary to describe what they see. What colour do they see, does that relate to a specific item in the tray? What is the texture like?

Additional links

[*The Magnifying Effect of a Water Drop - Scientific American*](#)

[*Easy Homemade Microscope for Kids \(raisinglifelonglearners.com\)*](#)

[*Science for Kids: Make Your Own Mini Microscope - Childhood101*](#)

Investigating the history of microscopy - Antonie van Leeuwenhoek