Teaching Primary Science Outdoors

Helen Spring

www.SpringLearning.co.uk
helen@springlearning.co.uk
@SpringLearns

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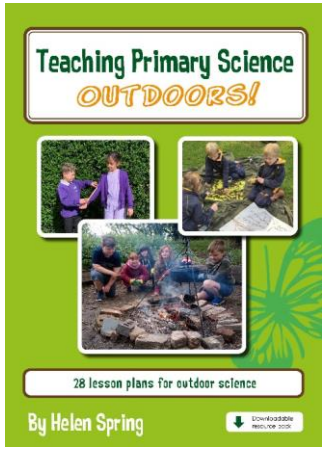
CLEAPSS primary

TAPS



ASSOCIATION FOR SCIENCE EDUCATION

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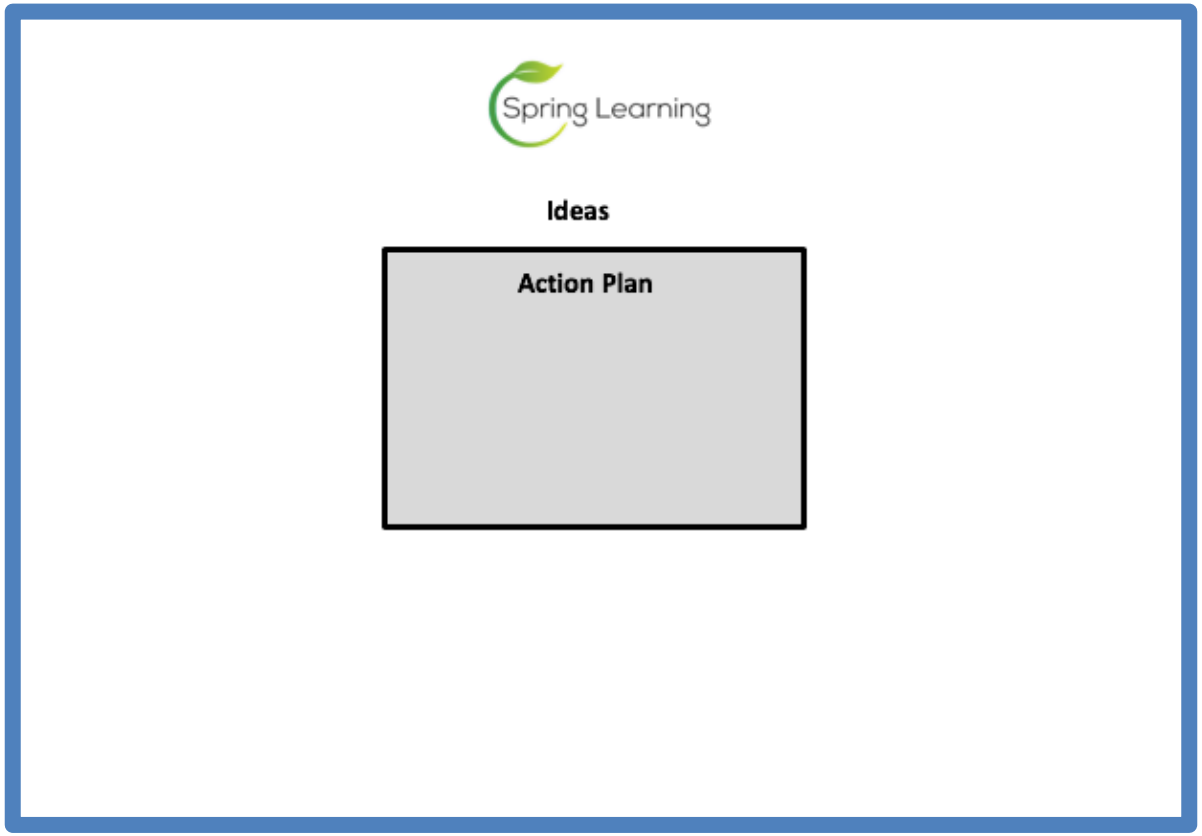
Action Planning



Teaching science outdoors in your school…

- What is going well?
- What challenges do you face?
- What questions do you have?

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What is Outdoor Learning?

Learning Outside the Classroom (LOtC) is the use of places other than the classroom for teaching and learning. It is about getting children and young people out and about, providing them with challenging, exciting and different experiences to help them learn.

Council for Learning Outside the Classroom

Outdoor learning is that which takes place beyond the four walls of the traditional classroom environment.

Association for Science Education (ASE)

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Why go outside anyway?

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5 Characteristics of Effective Outdoor Learning

1. one that supports children in making the transitions from within the classroom to beyond it
2. one where there is both regular and frequent use of the outdoor setting.
3. fully prepares children for working in the outdoors by addressing the basic psychological and physiological needs of the children before leaving the classroom
4. the teachers manage the transition back to the classroom as consciously as they manage the move to the outdoor setting
5. a shift to weaker framing

HOATH, L. (2015).

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Materials

The Circulatory System

Definitely outdoors....

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Could be outdoors….

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Planning for Outdoor Learning

- Take a copy of the curriculum
- Highlight the obvious opportunities for outdoor learning in your year group (eg – identifying trees)
- In a different colour, highlight the less obvious opportunities for outdoor learning
- Choose one objective and plan how you will teach it outdoors. What barriers need to be overcome in your context?

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Planning to teach outdoors

Materials – Year 2

Pupils should be taught to:

- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Materials

Images © Millgate House Publishing
'Teaching Primary Science Outdoors'
by Helen Spring

TAPS

- Materials hunt
- Ice Escape (NI)
- Shades of colour in the playground (NI)

CLEAPSS primary

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Planning to teach science outdoors

Animals including Humans – Y6

Pupils should be taught to:

- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
- describe the ways in which nutrients and water are transported within animals, including humans.

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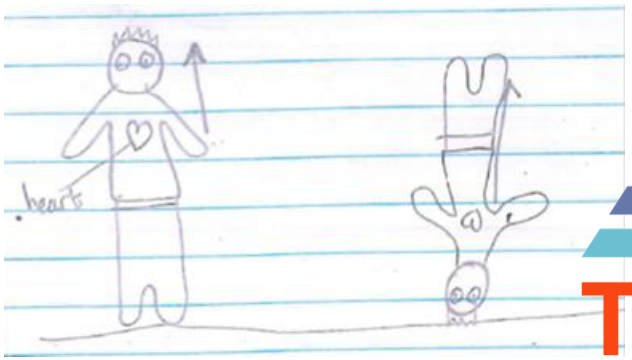
The Circulatory System

https://www.getyourplayonline.com/post/blood-soup



The Circulatory System

Year	6	Topic	Animals, including humans

Focus of assessment (National Curriculum statements)

- Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.
- Describe the ways in which nutrients and water are transported within animals, including humans.

Description of activity

The basic parts of the of the circulatory system were mapped out onto the floor in the playground – heart, lungs, blood vessels and muscles. The children moved around the body as though they were the blood. When the teacher said freeze, the children stopped moving and explained to the person in front of them where they were in the circulatory system.

EVIDENCE OF LEARNING

Oral evidence

"I am in the left ventricle at the moment. I am going to be pumped into the aorta and then I will take the water, nutrients and oxygen to the muscles in the body."

Teacher observations

While moving through the complete circulatory system, Muharem demonstrated that he could explain where he was and what he was doing.

Examples of work

ASSESSMENT

Knowledge

By the end of this activity, it was clear to the teacher that Muharem had a good understanding of the double circulatory system that is required to be secure at Key Stage 2. The additional detail about the parts of the heart and the names of the different blood vessels is beyond Key Stage 2.

Working scientifically

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Plants – Year 3

Pupils should be taught to:

- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant
- investigate the way in which water is transported within plants
- explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal

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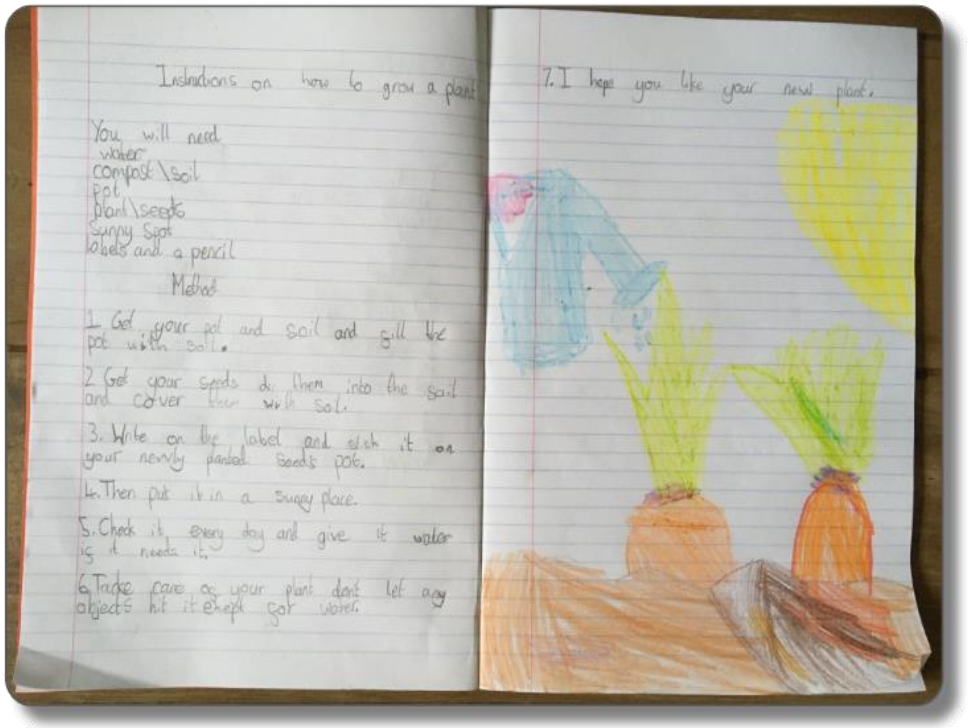
Plants

Plants



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Forces – Year 5

Pupils should be taught to:

- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

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Forces

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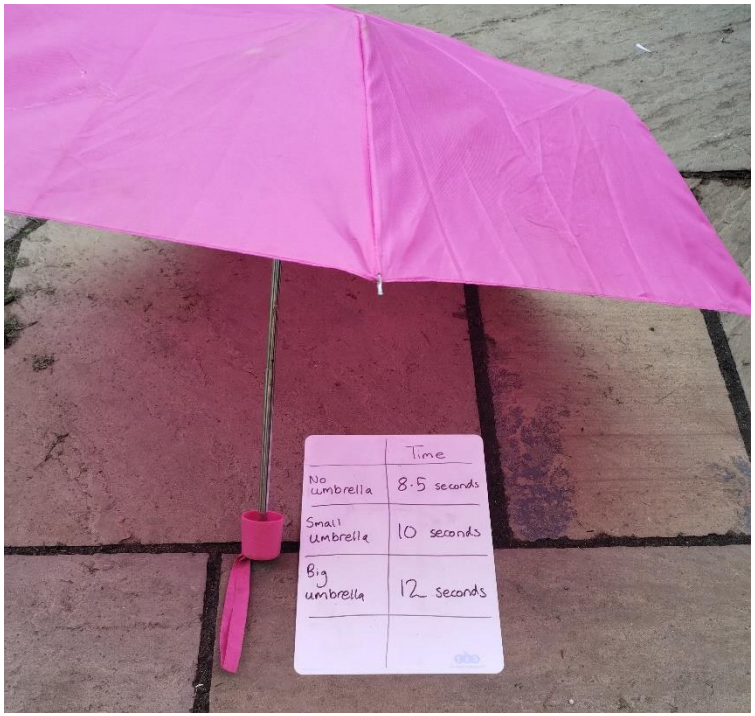
Forces

Forces Y5



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Forces Y5

Name: Chloe

Date: 15.12.23

LO:

- To identify the effects of water resistance.
- To use a timer to take repeat readings.

Do rafts with different size fronts take different amounts of time to cross a bowl and why?

Results

Table to show how long the raft takes to travel from one end of the bowl to the other.

Surface area	Time taken – 1st reading	Time taken – 2nd reading	Time taken – 3rd reading	Mean time taken
60 cm²	2.03	3.16	4.56	3.25
132 cm²	9.72	10.97	12.00	10.89

Conclusion

The mean time it took for the raft with a front surface area of 60~~cm²~~ cm² was 3.25 seconds. The mean time it took for the raft with a front surface area of 132 cm² was 10.89 seconds.

Can you explain your findings?

The ~~larger~~ raft with the larger front had taken longer to cross the bucket of water. The raft with the smaller front took 3.25 secs ~~to do~~ whilst the larger front took 10.89 secs. Water hitting the raft is called water resistance more ~~water~~ hit the raft with a larger front surface area, making it cross slower.

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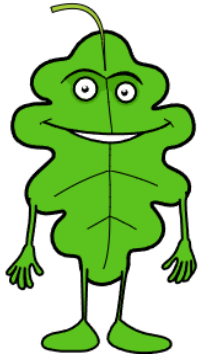
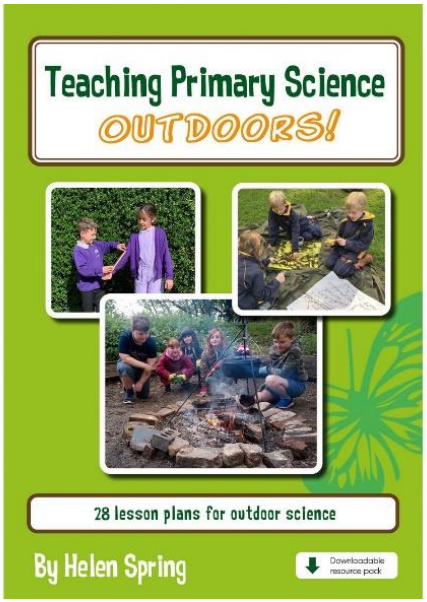
Resources to support outdoor learning and science

Learning through Landscapes





PLAN
Planning for assessment

Playground SCIENCE

Primary Science Teaching Trust

CLEAPSS primary

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Gap task!

Plan and teach at least one science lesson, or part of one science lesson outdoors.

Be prepared to discuss how the lesson went when you come back. ***If you can***, bring some children's work, or your planning, to discuss.

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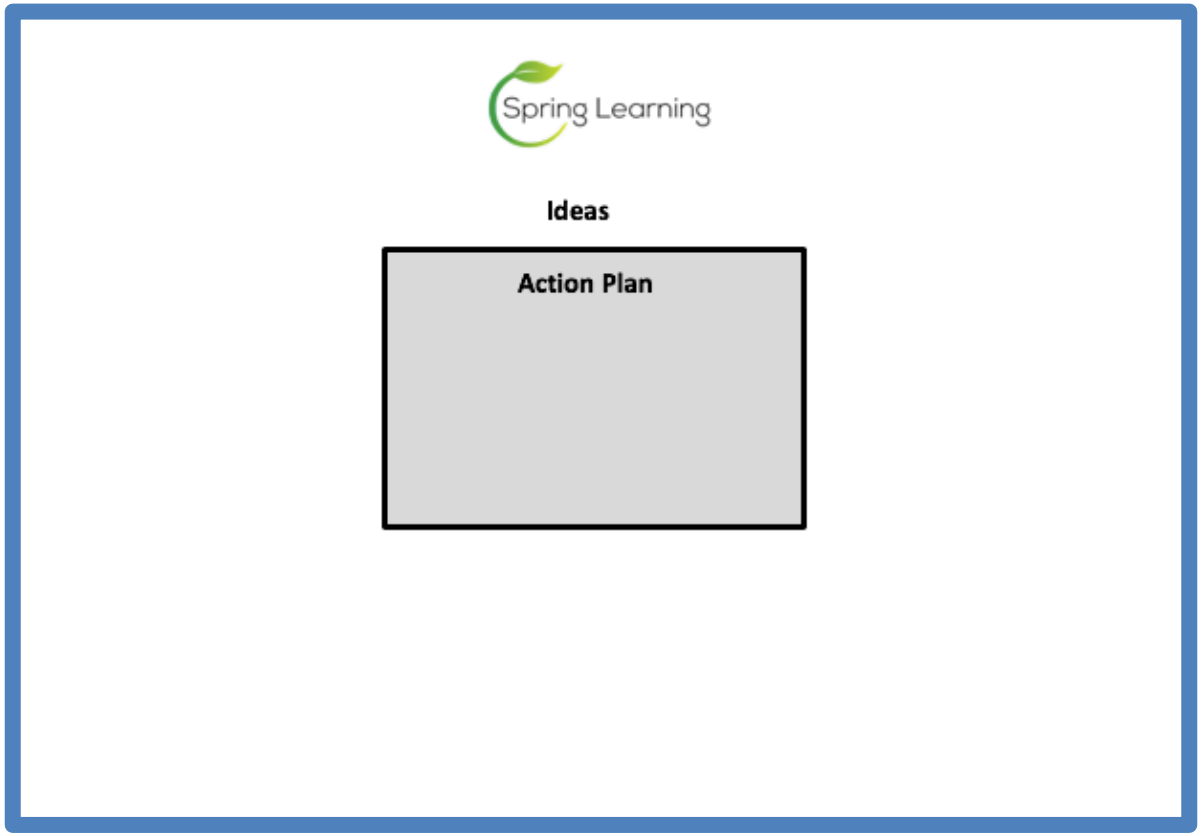
Action Planning



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