Welcome to Teaching Primary Science Outdoors!

Please introduce yourself in the chat

Please use chat to communicate in this session

If you cannot hear the facilitator, please let us know in the text chat and we'll try to help.

You will be muted on entry to the meeting.

Please do not share any personal data or confidential information in this session.

If there are any questions we don't get to today, please contact us afterwards and we will do our best to help

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Teaching Primary Science Outdoors

24.11.20

Helen Spring

Primary Science and Outdoor Learning Consultant

@SpringLearns

www.SpringLearning.co.uk

helen@springlearning.co.uk

07790613331

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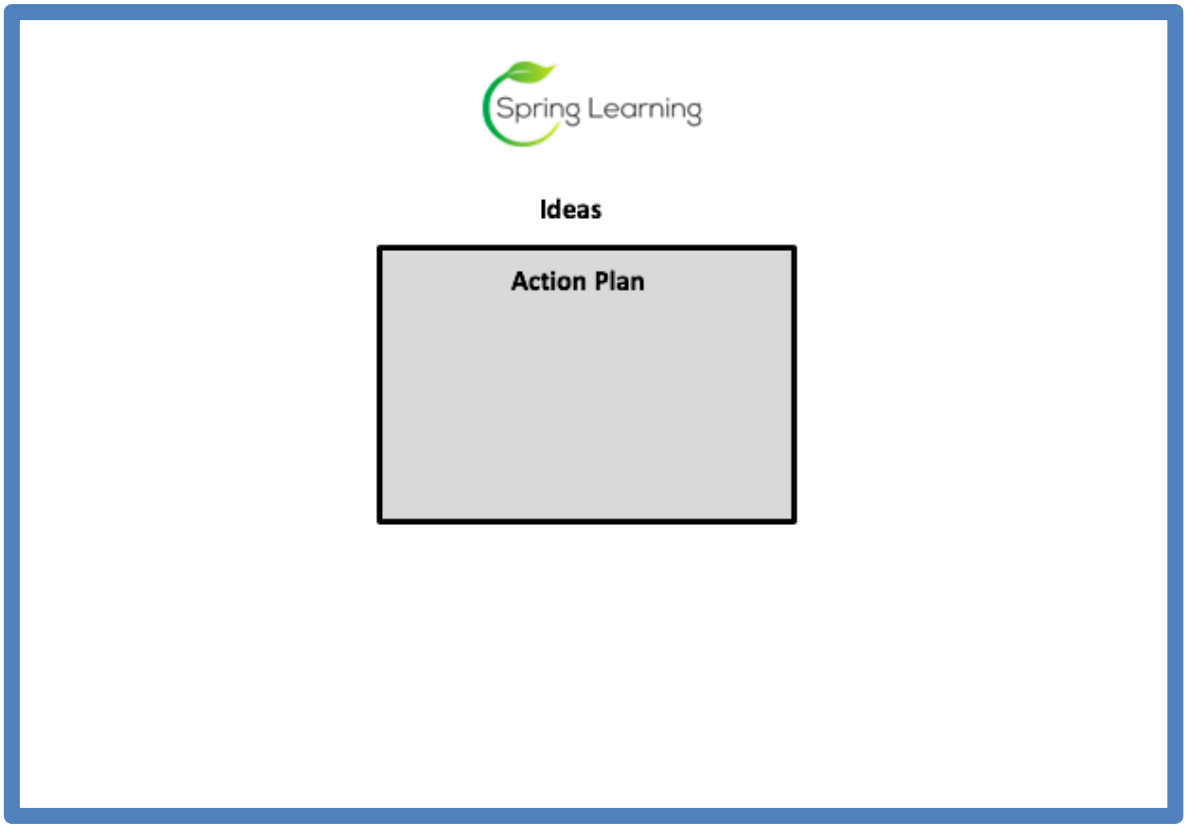
Action planning



Intended learning outcomes

By the end of this session you will be able to:

- Consider the benefits and barriers to learning outdoors
- use outdoor activities as a context to develop enquiry skills and consolidate scientific knowledge
- plan actions needed to teach science outside in a safe way

Padlet

How is your school managing learning taking place outside?

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

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Why go outside anyway?

- Benefits of being outdoors (University of East Anglia, 2018)
- Impact on educational attainment (EEF, 2018; Education Scotland, 2017)
- Educational benefits (Hamilton, 2018)
- Natural Connections, 2016
- Taking risks (Gill, 2010)
- Ofsted – 3 I's; broad and balanced curriculum
- Social Distancing

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Poll

How confident do you feel about teaching outside?

What are the challenges of teaching science outside in the current situation?

And in general?

Write your thoughts in the CHAT please..

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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, Leigh Jane (2015). *A framework for understanding the distinctive characteristics of an outdoor setting pedagogy: a comparative primary education case study approach.* Doctoral, Sheffield Hallam University.

Health and Safety

- CLEAPSS: http://primary.cleapss.org.uk/
- ‘Be safe’ Fourth addition is a key document which needs to be given consideration before planning outdoor learning activities.
- Any advice given by your LA must be considered

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Risk Assessment

What are the hazards? What could happen? Please list	Who is at risk?	Current Control Measures in Place	Further action required to reduce risk to an acceptable level	Action by whom	Action by when
Natural and manmade obstacles (trees, ropes etc) – leading to injury	all		Children to be supervised Education Officer to dynamically risk assess the site and any new obstacles created before children are allowed to use them.	Group leaders Education Officer	At event
Tree climbing – fall leading to injury	all		Children to be supervised Tell children to climb no higher than 2 metres (insurance)	Group leaders Education Officer	At event
Rope swings - fall	all	Education Officer to take down any rope swings which appear unsafe Children not allowed to use the fixed rope swing over the river	Group leaders to supervise Education Officer to dynamically risk assess the putting up of any new rope swings	Group leaders Education Officer	At event

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Health and Safety

What role can the children play in assessing these risks?

Break Out Rooms…

Science Lessons

All good science lessons, both indoors and outdoors, should have both a subject knowledge and a working scientifically objective.

- There should be opportunities for pupils to make progress and opportunities for assessment.
- TAPS and PLAN resources provide many examples of assessment opportunities that either are taking place outdoors or could take place outdoors.

5 Types Of Enquiry

enquiring science4all

ReachOut CPD

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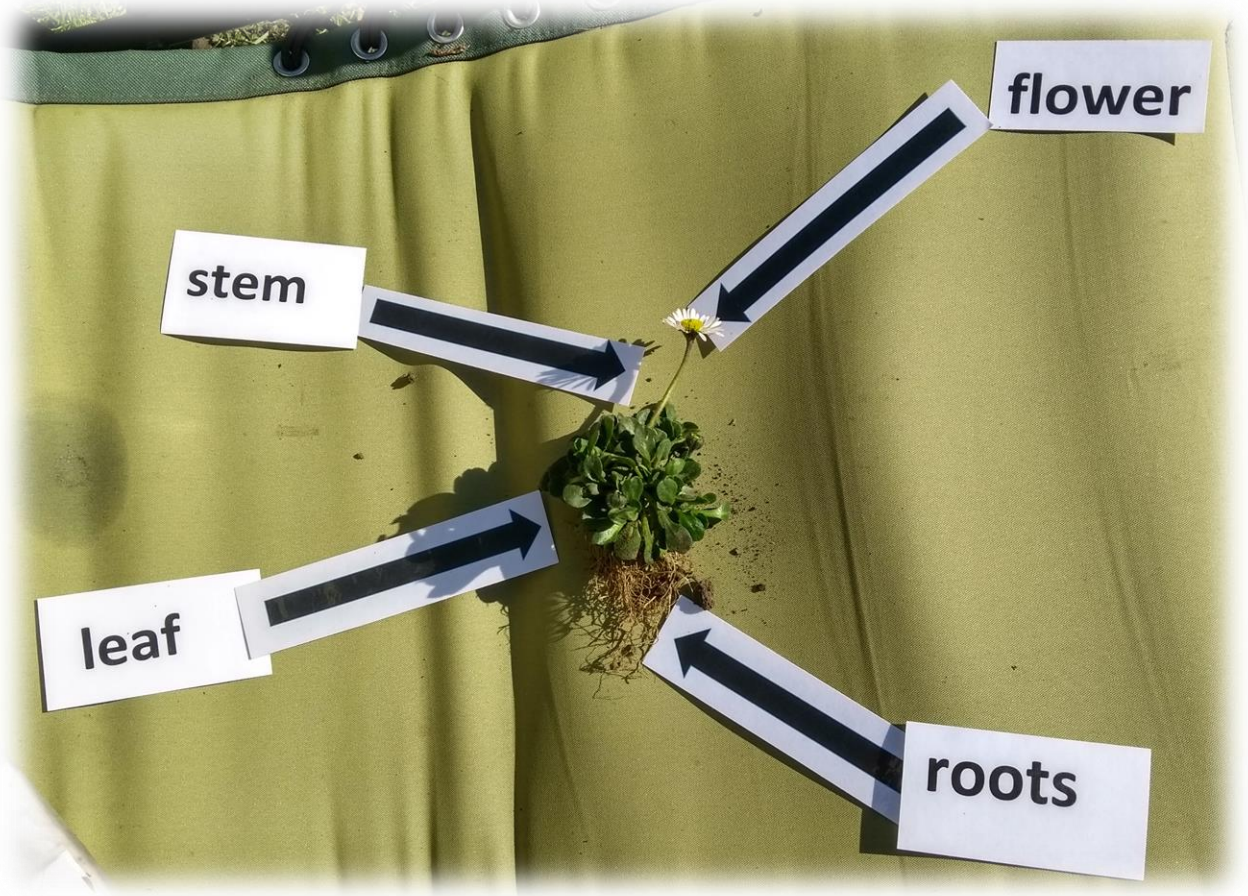
Definitely Outdoors



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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?

Year 2 programme of study

Living things and their habitats

Statutory requirements

Pupils should be taught to:

- explore and compare the differences between things that are living, dead, and things that have never been alive
- identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
- identify and name a variety of plants and animals in their habitats, including micro-habitats
- describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Uses Of Everyday Materials – Y2

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Forces – Y5

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Breakout Rooms

Discuss how the following objectives **could** be taught, or partially taught, outdoors. One person from each group to post in ‘chat’ when you return...

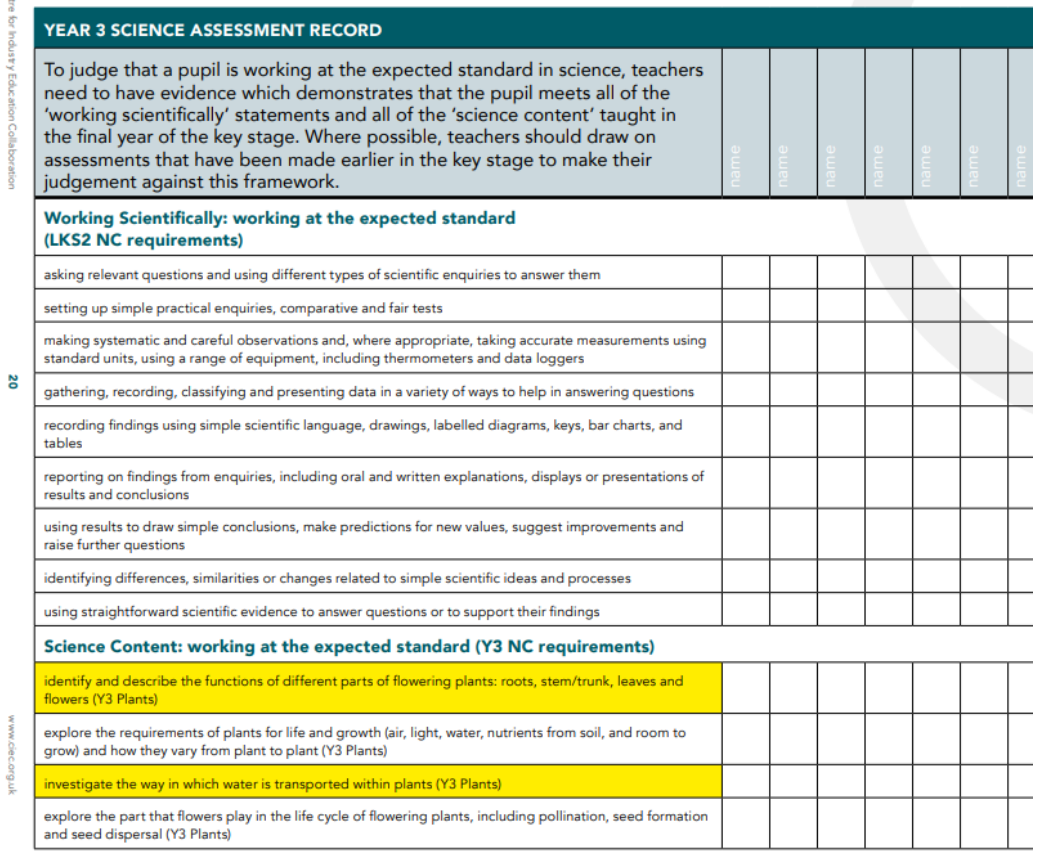
Animals including Humans – Y3

Pupils should be taught to:

- identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
- identify that humans and some other animals have skeletons and muscles for support, protection and movement.

Assessment

- PSTT TAPS for assessing Working Scientifically
- ASE PLAN resources for exemplification of ARE for subject knowledge
- A good tracking system



YEAR 3 SCIENCE ASSESSMENT RECORD

To judge that a pupil is working at the expected standard in science, teachers need to have evidence which demonstrates that the pupil meets all of the 'working scientifically' statements and all of the 'science content' taught in the final year of the key stage. Where possible, teachers should draw on assessments that have been made earlier in the key stage to make their judgement against this framework.	name	name	name	name	name	name	name
Working Scientifically: working at the expected standard (LKS2 NC requirements)							
asking relevant questions and using different types of scientific enquiries to answer them							
setting up simple practical enquiries, comparative and fair tests							
making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers							
gathering, recording, classifying and presenting data in a variety of ways to help in answering questions							
recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables							
reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions							
using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions							
identifying differences, similarities or changes related to simple scientific ideas and processes							
using straightforward scientific evidence to answer questions or to support their findings							
Science Content: working at the expected standard (Y3 NC requirements)							
identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers (Y3 Plants)							
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 (Y3 Plants)							
investigate the way in which water is transported within plants (Y3 Plants)							
explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal (Y3 Plants)							

Assessing Working Scientifically

Primary science enquiry outdoors

Learning outdoors is a key part of primary science. The Teacher Assessment in Primary Science (TAPS) project has created a wide range of activities to support Working Scientifically. Many of these can take place outside and examples are listed below, with hyperlinks directly to the TAPS plan.

	Possible skills focus	Examples of science learning which can be done outdoors	Examples of science learning about the outdoors
Age 4-7	- Ask questions - Perform simple tests - Observe closely - Gather and record data to answer Qs - Identify and classify	How could we make the best shelter? Incy spider shelter R What happens to the ice? Frozen balloons R Which materials can we see light through? Transparency Y1 Which objects do we think will float/sink? Float & sink Y1 Which material made the best boat? Boat materials Y2 How do we get the character out of the ice? Ice escape Y2 What materials can we find? Materials hunt Y2 How do we test which material is the most waterproof? Waterproof Y2	How can we sort the things we have found? Scavenger sort R Do all leaves look the same? Leaf look Y1 What parts does this plant have? Plant structure Y1 What colours/shades can we find? Shades of colour Y1 What season is it now? Seasonal change Y1 What does a plant need to keep healthy? Plant growth Y2 What living things can we find nearby? Nature spotters Y2 Is this alive? Has this ever been alive? Living & non-living Y2 How many daisies are in each area? Daisy footprints Y2 Where do woodlice live? Woodlice habitats Y2
Age 7-11	- Plan different types of enquiry to answer Qs - Take measurements - Gather, record and classify data - Report findings - Use results to draw simple conclusions - Evaluate degree of trust in results	Which kind of materials make shadows? Making shadows Y3 Which rock is the most hard-wearing? Rocks report Y3 How can we package the egg? Egg drop Y3 Which area is hottest/coldest? Adapt Measuring temp Y4 How do we find out the best conditions for drying? Drying Y4 Which is the best material for the job? Adapt Champion tapes Y5 How can we compare our planes? Paper planes Y5 How far can we make a spinner travel? Spinners Y5 (link to seed dispersal)	How much water do plants need? Measuring plants Y3 How can we help our local environment? Eco action Y3 What living things can we find? Local survey Y4 Making a classification key for our area, e.g. Outdoor keys Y6 Plus: Woodland Trust spotter sheets and activities Growing plants website guide for each month of the year Dr Katherine Forsey's detailed plans for pond/bush/minibeast/rock pool hunts

The full set of enquiry lesson plans can be found under the 'Focused Assessment plans' tab, including many others which could take place outdoors:
https://pstt.org.uk/resources/curriculum-materials/assessment
The majority of plans can be adapted for any age group or situation, so the above are only suggestions.

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Supporting ideas and resources

Learning through Landscapes

ERNEST COOK TRUST
ECT
learning from the land

Coming soon

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Helen Spring

Millgate House

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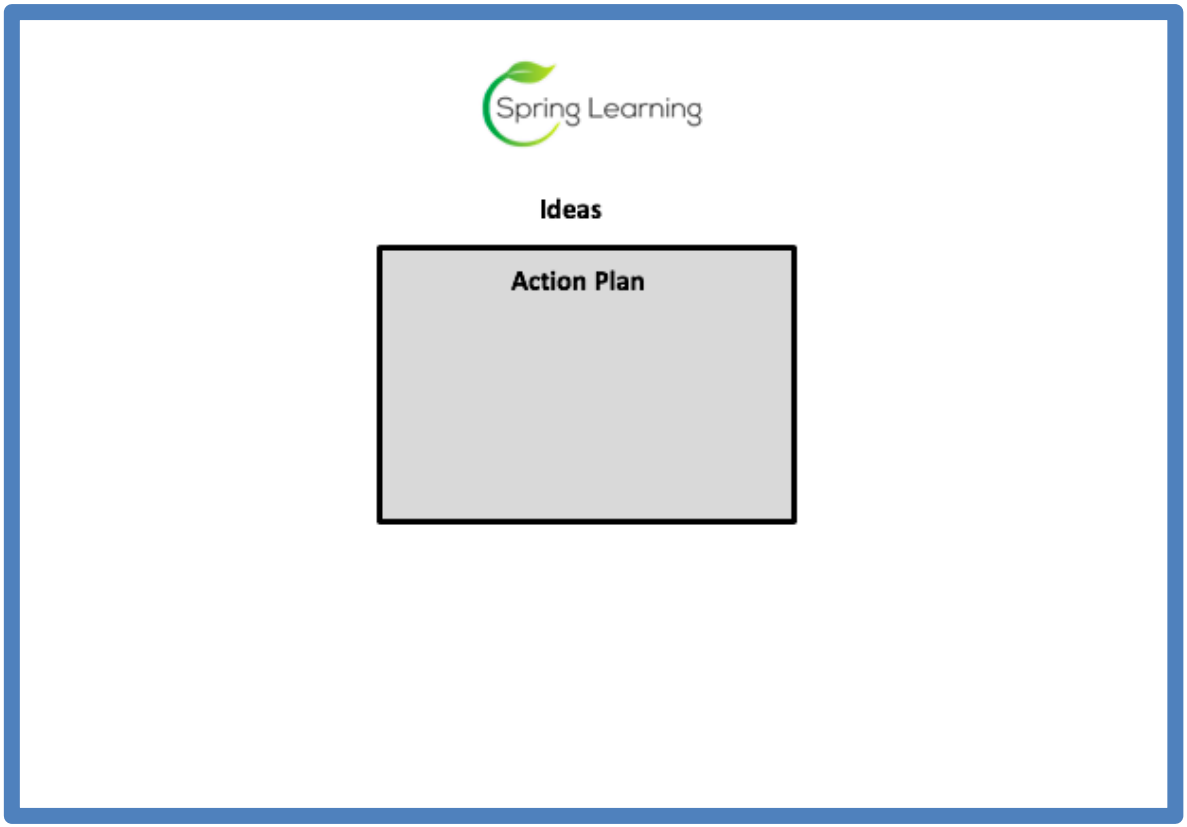

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