

Hello Trees Resource Sheet



KS1 Y1 Science Diary Item

Conifer cones and the weather



You don't have to use every Science Diary suggestion!

You don't have to do everything on this sheet! Bits in **bold** recommended.

You can make **2 diary entries**: setting-up today, conclusions later.

OBJECTIVES:

1. FIND OUT ABOUT CONIFER SEEDS AND THEIR DISPERSAL,

2. MAKE A CONIFER-CONE WEATHER STATION

WHAT YOU NEED

1. A place to put a conifer cone outdoors or on a porch;
2. 2 stones to prop up each cone;
3. Some conifer cones: any conifer cones, a variety if pos., fair size;
4. Some cocktail sticks or narrow twigs;
5. Piece of paper with numbered lines radiating from a point;
6. Internet local weather: humidity, temperature, and rain forecast;
7. Spreadsheet or chart to record results for each cone.

Conifers are most common in churchyards and cemeteries, but also parks. Take a box with a lid (ice cream tub) to collect your cones (keep creatures).



date	cone meter	weather	temperature	humidity	rain forecast
23 Sept.	1-2	cloudy	Cool/13 °C	Damp/36%	✓

WORKING SCIENTIFICALLY

✓ **Experience and observe:** Cones: colour, weight, size, texture, patterns of scales, # of scales.

Shake the cones over a box to release seeds & creatures: catch creatures in bug pots.

Contents of cones: creatures, **seeds, each with a wing**, one under each scale.

✓ using magnifying glasses/bug pots: seeds, creatures.

✓ school locality: where you found the cones, location for weather forecast.

✓ grow our own: you could plant the seeds. Put pot outdoors with net cover (more later)

✓ **Curiosity and questioning** (all suggestions acceptable):

[Useful information from botanists:

On conifer cones, 'specialised mechanical tissue at the base of each scale controls closing when humidity is high and opening when it is dry']¹

How do the seeds get out? [scales must be open]

Were the scales always open? [closed while the seeds developed, open when ripe.]

Would it be good if the scales open in the rain? [seeds like moisture to *grow* but first need to *reach* a good spot to grow. Dry wings are lighter and fly better]

Would it be good if scales open when it is windy and dry? [wind would scatter seeds more widely. More chance some would reach a good place to grow.]

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Elicit suggestions as to how to test whether

1. the scales can open and close,
2. whether the scales are more open when it is dry and less open when it is wet,
3. whether all cones react to weather.

✓ Tests to answer questions:



1. Put a cocktail stick between scales on one side, and another on the other side at the same level. [If scales open or close, they will push the sticks up or down]

2. Position cones outdoors out of harm's way [Have a support behind so that the paper measure can be inserted behind the cone whenever you want to take a measurement]

3. Record today's results on your spreadsheet/chart.

4. Record results on warmer/colder, sunnier/cloudier, drier/damper days

5. Examine results and conclude whether (a) conifer scales open more when it is drier; (b) rain is more likely when scales more closed; (c) all cones react to weather.

✓ observe changes over time: cone scale positions change over time

✓ notice patterns, compare aerofoils: birch seed wings, conifer seed wings, lime bracts.

✓ Group and classify: classify conifer seeds as wind dispersed.

✓ Use secondary sources of information: Books, Photos, Videos:



Read [Hello Trees book 'Larry Larch'](#) to confirm when seeds are released.

✓ Develop scientific language:



A 'conifer' is a tree that bears cones

'Cone scales' are parts of a cone: each encloses a developing seed .

✓ Communicate what they find:

✓ To different audiences and ✓ In different ways: as ever

✓ PLANTS ✓ Identify common trees: know conifers are trees that bear cones.

Read '[Larry Larch](#)' at story time to reinforce all clues to larch tree identification.

✓ ANIMALS examine + count legs of creatures that scurry out of the cones (earwigs, spiders)

✓ EVERYDAY MATERIALS

✓ Identify and name everyday materials – cones are woody, rain-proof, hard, brown/grey.

✓ Properties of everyday materials – light-weight materials fly best

✓ SEASONAL CHANGES

✓ Weather words: 'cloudy', 'overcast', 'sunny', 'hot', 'humid', 'rainy', 'stormy', 'snowy', ...

x Day length – another time

**PLENARY: # Conifers bear cones # A winged seed is under each cone scale
Conifer seeds are dispersed by the wind # We have set up a test to see if
scales open when it is dry, and if we can predict rain from scale openness.**

¹ Thomas, Peter A., 'Trees: Their Natural History Second Edition', p188, CUP, 2018.