Counting
Children count the rings of a tree and calculate its age.

How to measure the age of a tree

Show (on the projector), send or print out for the students photos showing the cross sections of trees. Print and hand out to students the worksheets.

We measure the age of a tree based on the number of rings we can see in a cross-section of its trunk.

In the majority of tree species two rings form each year: a light ring and a dark ring. The light ring forms in early Spring when nature comes to life and the tree's growth is more intense. On the other hand, the dark ring forms in late summer/early autumn, when nature begins to prepare for winter (a period of stagnation) and the tree grows at a much slower rate.

Because the two rings form over the course of a year, if we want to know the age of a tree we need to divide the number of rings by two.

Counting

How can we calculate the age of a tree without cutting it down? The students measure the circumference of a tree and calculate its age on the basis of factors.

How to calculate the age of a tree

Only present the method described in the materials after you have exhausted the ideas of the students. Each species of tree has its own rate of growth in terms of trunk thickness. Scientists have developed a "growth coefficient" which allows us to calculate the age of a tree without counting the number of rings. If we know the diameter of the trunk as well as the species we can calculate the age.

To achieve this task, you can use either an illustrated guide to trees or field guides from the links listed below.
https://www.arborday.org/trees/whattree/
http://leafsnap.com/

The students work in teams.

How to calculate the age of a tree

You will need the following:
- a tape-measure or a steel tape for each team,
- a table of growth factors (provided)
- the illustrated guides to trees.

1. The teams choose a tree to measure and then, with the help of the illustrated guide to trees or the field guide, they should identify what species it is.
2. The team marks a measuring point 54 inches above the ground. The students then measure the circumference of the trunk.
3. Their next task is to calculate the diameter. The students can calculate the diameter of the circumference of a trunk by using a calculator and the appropriate formula (circumference divided by pi) or they can also draw a circle in the ground the same size as the circumference, and simply measure its diameter (best when you allow them to come up with this idea themselves).
4. The students check their tree on the growth factor table.
5. By multiplying the diameter by the growth factor they get the age of the tree and record the result.

Counting

Using the knowledge the students have acquired during the lesson they can: look for the oldest tree in their neighborhood or calculate the sequoia growth factor using the date from the video.

The homwork

https://www.youtube.com/watch?v=vNCH6uhB_Bs

Calculate the sequoia growth factor using the date from the video.

Magnificent Giant Tree: Sequoia in a Snowstorm

Clicking play will redirect you to YouTube website.

Presenting results
How old are the trees you have measured?

The children compare their results

The children can compare their results in different ways. Examples of tasks for teams:

1. Find a team that has measured a tree with the same growth factor as yours. Compare your results and draw conclusions.

2. Find a team whose tree had the same diameter as yours. Compare the results and draw conclusions.

3. Encourage the children to look for different ways of comparing results.