

SCIENCE AND AGRICULTURE

STEM CHALLENGE

A PIEFA MEMBERS COLLABORATION



FOR
YEAR 3/4

FOREST LEARNING
TREES AND ME



TEACHER OVERVIEW

TREES AND ME



Year: Year 3-4

Outcomes:

Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU044).

Natural and processed materials have a range of physical properties that can influence their use (ACSSU074).

Introduction

The forests of Australia serve many important purposes. They provide habitats for plants and animals and places for recreation, enjoyment, and culture. Trees in forests help clean our water, protect our soils, and help fight climate change by capturing and storing carbon from the atmosphere in their wood.

Productive, sustainably managed forests provide us with renewable wood products (timber), paper (wood fibre), and other forest products like honey. It is important that forests are managed sustainably – for today and forever - to balance these competing demands (ForestLearning, 2021).

Task:

Activity One: Multimedia Task | Trees Save the World

Students view footage about the importance of trees and respond to questions on a sticky note template.

Activity Two: Research Task | Pinus radiata

Students complete a 3, 2, 1 group research task focused on the features and properties of the Pinus radiata tree.

Activity Three: Directed Drawing | How to Draw a Feature of a Softwood Tree

Students get creative and follow an engaging tutorial on how to draw a pinecone - a feature of softwood trees.

Activity Four: Multimedia Task | Making Paper from Trees

Students view footage about how trees are transformed into products they use every day and be able to experience a 360-degree virtual tour.

Activity Five: Group Paper Tower Challenging

Students will engage, design and create a paper tower with limited supplies!

TEACHER INSTRUCTIONS

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Task:

Activity One: Multimedia Task | Trees Save the World

Access the video: Trees Save the World, and allow students to observe footage. Discuss the answers to the questions provided on the student sticky note template.

Source: [Trees Save the World](https://forestlearning.edu.au/find-a-resource/article/41/trees-save-the-world.html)

URL: <https://forestlearning.edu.au/find-a-resource/article/41/trees-save-the-world.html>

Activity Two: Group Research Task | Pinus radiata

Provide students with access to the internet and guide them in researching features of the Pinus radiata species. Encourage students to look for information regarding height, changes to development over time, lifespan, features of wood products, such as hardness, sustainability, etc. Students should record their findings in a 3, 2, 1 format on their worksheets.

Activity Three: Directed Drawing | How to Draw a Pinecone

Provide students with the template or a blank sheet of paper and pencils. Access the link and complete the directed drawing of the pinecone (a feature of softwood trees).

Source: [How to draw a pinecone. Art for Kids Hub \(7.00\)](https://www.youtube.com/watch?v=i8FofPqHGkU)

URL: <https://www.youtube.com/watch?v=i8FofPqHGkU>

Activity Four: Multimedia Task | Making Paper from Trees

Allow students to view the footage of how trees are transformed into various products. A second link is provided to allow students a 360-degree virtual tour.

Source: [Going Bush Series 5 Episode 1B - ForestLearning](https://forestlearning.edu.au/find-a-resource/article/34/going-bush-residue-from-the-one-tree-goes-to-making-fine-copy-paper.html)

URL: <https://forestlearning.edu.au/find-a-resource/article/34/going-bush-residue-from-the-one-tree-goes-to-making-fine-copy-paper.html>

Source: [Pine Plantation to Paper- The Paper and Board Milling Story](https://forestlearning.edu.au/forestvr/article/4/pine-plantation-to-paper.html)

<https://forestlearning.edu.au/forestvr/article/4/pine-plantation-to-paper.html>

Activity Five: Group Challenge | Build a Paper Tower

Encourage students to revise what they have learnt about the importance of trees, their features and the properties of their materials. Organise students into groups and provide them with the details of the challenge. Students can use 20 sheets of A4 paper, 1 roll of tape and a pair of scissors to create a tall, unsupported tower for judging. Allow students time to research designs, make a plan and build. At the conclusion of this task, take a tour of some Australian buildings made from wood products and if time, allow students to create a replica of their favourite building.

STUDENT WORKSHEET

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Activity One: Watch the video: Trees Save the World, and answer the questions on the sticky notes below.

Source: Trees Save the World

URL: <https://forestlearning.edu.au/find-a-resource/article/41/trees-save-the-world.html>

- 1) What is one harmful thing that humans are doing to the Earth?
- 2) What is the effect of too much carbon dioxide (CO₂) in the air?
- 3) How do trees help with the problem of carbon dioxide in the air?
- 4) List 2 things that are made from trees?



STUDENT ACTIVITY

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Observable Properties and Features of the *Pinus radiata*

Research the following information and record your findings in the spaces beside the pine needles.

- 3 - features of a living *Pinus radiata* tree
- 2 - features of the wood/materials it produces (the type of fibre)
- 1 - interesting fact that you found out during your research about this species of tree

3



2



1



STUDENT WORKSHEET

TREES AND ME

Feature of a Softwood Tree: How to Draw a Pinecone

Activity Three:

One of the features of softwood trees is that they grow cones. Listen to the tutorial and learn how to draw your own pinecone.

Source: [How to draw a pinecone. Art for Kids Hub \(7.00\)](#)

URL: <https://www.youtube.com/watch?v=i8FofPqHGkU>

Activity Four:

Once you have finished your pinecone, view the video to learn about the process of making paper. Visit the link to the 360-degree VR Tour to see some amazing footage of the processes involved in making products from wood.

Source: [Going Bush Series 5 Episode 1B - ForestLearning](#)

URL: <https://forestlearning.edu.au/find-a-resource/article/34/going-bush-residue-from-the-one-tree-goes-to-making-fine-copy-paper.html>

360-degree VR Tour

Source: [Pine Plantation to Paper- The Paper and Board Milling Story](#)

<https://forestlearning.edu.au/forestvr/article/4/pine-plantation-to-paper.html>

STUDENT ACTIVITY
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**CREATE A PAPER
TOWER**

Activity Five:

Build the tallest possible tower using nothing but paper, scissors and tape! In groups, you will design and create the tallest tower possible using only:

- 20 sheets of A4 paper (recyclable is best - and don't use newspaper)
- 1 roll of sticky tape
- 1 pair of scissors

Design a plan on paper with your group, showing the strategy you think you are going to use to build a tower (you can modify this during your building). Your tower cannot be supported, and it can't fall over during judging! Check out the stimulus page for ideas.



STUDENT ACTIVITY
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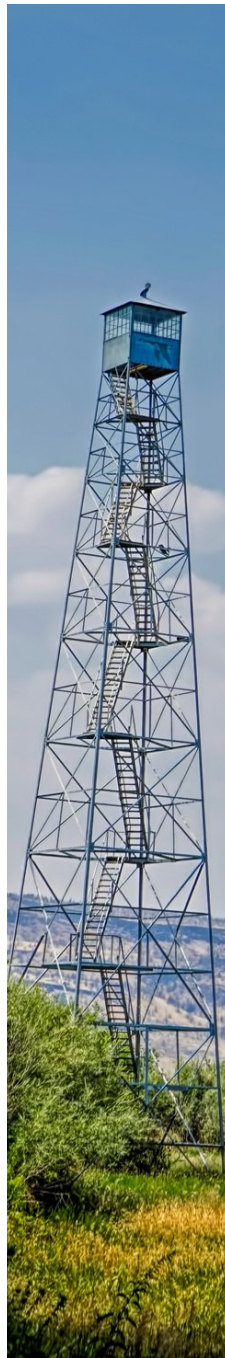
REFLECTION

- 1) What features of your design were successful?
- 2) How would you change your design for next time?
- 3) Why was paper a good material to work with for this challenge?
- 4) What were the disadvantages of using paper for this challenge?



STUDENT STIMULUS TREES AND ME

TOWER IDEAS



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Mid-rise Case Studies

You have built a tower from paper, but did you know that timber products can be used to build mid-rise buildings too?

a) Access the following link and have a look at some of the amazing buildings around Australia that are made from wood.

Source: Wood Solutions, Mid-rise Case studies

URL: <https://www.woodsolutions.com.au/mid-rise/case-studies>

b) What is your favourite design? Write the name of the building in the space below.

c) Draw a sketch of the design.

d) You could create an extra challenge for yourself and try to build a replica of your favourite building out of paper.