

The World of Raspberry & Blackberry

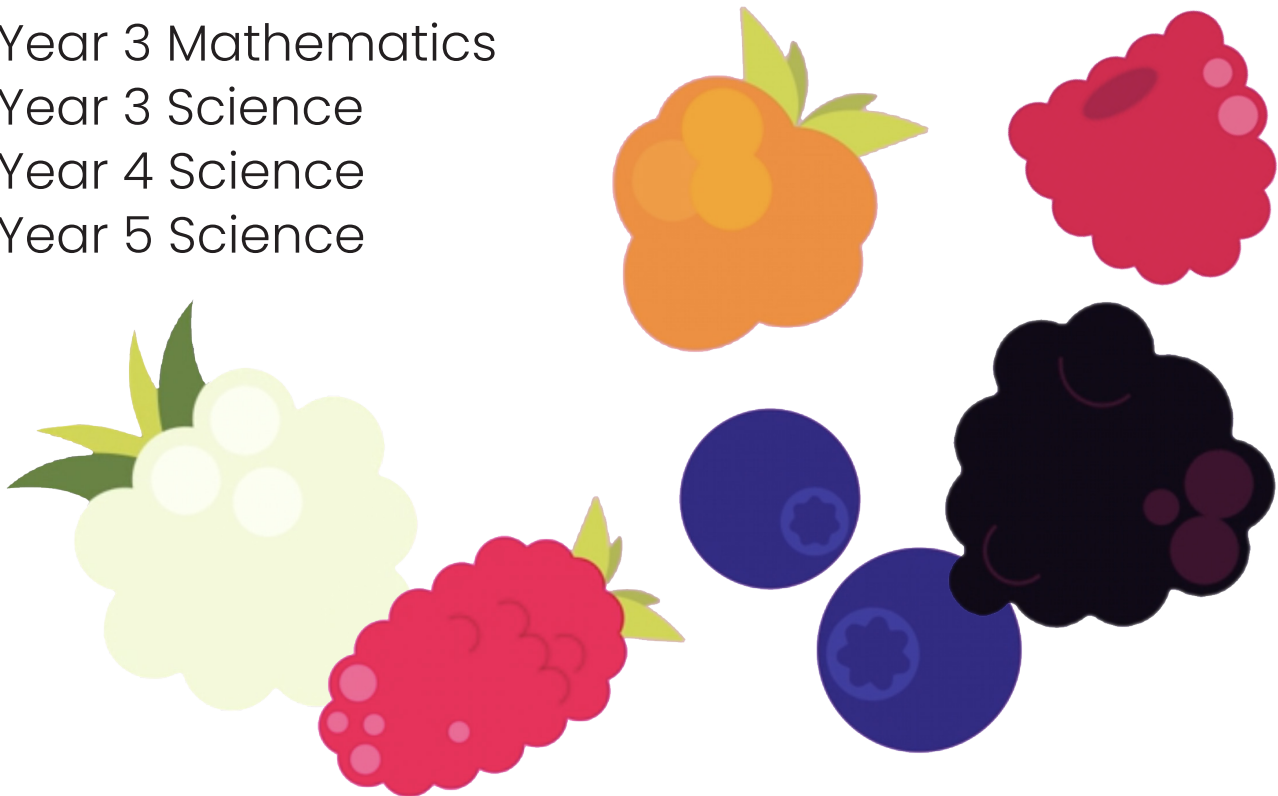
Year 2 Mathematics

Year 3 Mathematics

Year 3 Science

Year 4 Science

Year 5 Science



(Mathematics, Year 2, AC9M2A01)

Recognise, describe and create additive patterns that increase or decrease by a constant amount, using numbers, shapes and objects, and identify missing elements in the pattern

(Mathematics, Year 3, AC9M3SP01)

Make, compare and classify objects, identifying key features and explaining why these features make them suited to their uses

(Science, Year 3, AC9S3U01)

Compare characteristics of living and non-living things and examine the differences between the life cycles of plants and animals

(Science, Year 3, AC9S3H01)

Examine how people use data to develop scientific explanations

(Science, Year 4, AC9S4U01)

Explain the roles and interactions of consumers, producers and decomposers within a habitat and how food chains represent feeding relationships

(Science, Year 4, AC9S4H01)

Examine how people use data to develop scientific explanations

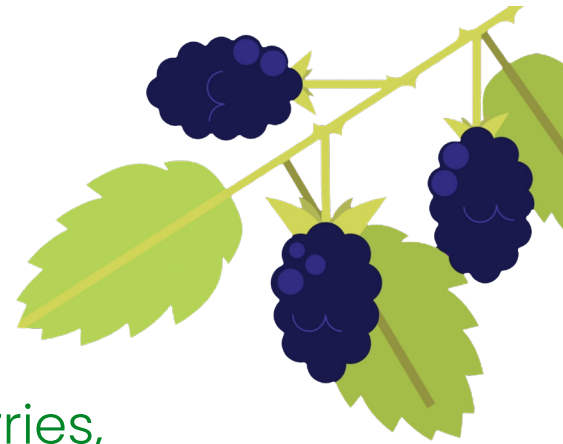
(Science, Year 5, AC9S5U01)

Examine how particular structural features and behaviours of living things enable their survival in specific habitats

The World of Raspberry & Blackberry

Aggregations and combinations for geometry

Who's a berry and what's it all about? This lesson looks at the botanical science of aggregate fruits like raspberries and blackberries, as a way to open up extensions into geometry and a little artistic berry-blasting on the side.



Duration:

1 hour

Location:

The classroom or outdoor learning space

Before you start:

You may have existing resources you use about the parts of plants and the formation of fruit. This lesson provides a couple of optional links to external sources that may help. Check them out and decide which ones you might use.

Decide which extension activities you will do and gather the resources you'll need.

Equipment:

- (Optional) Some examples of blackberries and raspberries, or blueberries for students to handle and taste.
- Images of lots of different kinds of berries and compound fruits (see the list under Teacher Resources).

Notes:

Getting Started

🎧 Listen to **Episode 17 – Raspberry & Blackberry**

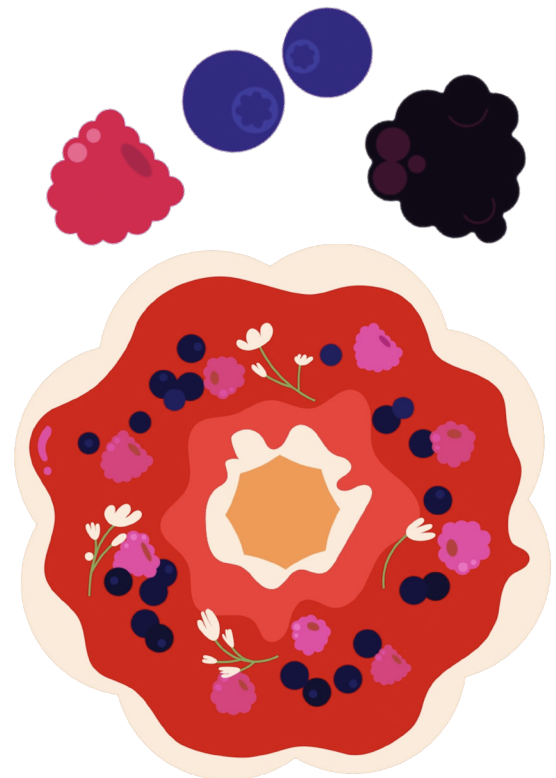


Teacher notes:

- Here's a complete list of all the fruits mentioned in Episode 17: raspberries, blackberries, blueberries, loganberries, boysenberries, caneberries, cloudberries, Australian indigenous gooseberries, snow berries and white elderberries, Bedford Giant blackberries, strawberries, mulberries (which are compound fruits).

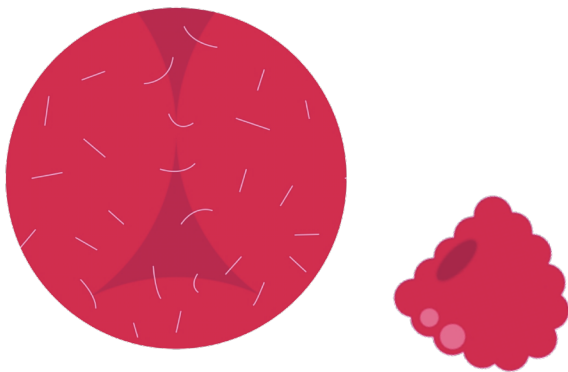
✍ Getting started:

- Show the class a wide variety of images of raspberries, blackberries and the other berries mentioned in this episode.
- (optional) If you have real raspberries and blackberries to handle, give students a chance to pull them apart and look at their construction.
- Whether using images or real fruit (or both), point out the drupelets that compose aggregate fruit like raspberries and blackberries. Each drupelet is a tiny ball of juicy pulp with one seed inside.
- Discuss and document class questions such as:
 - ◇ What is fruit and how does it form?
 - ◇ Why do plants form fruit?
 - ◇ How do fruit with multiple segments (like raspberries) form?



Berry Botanical – What is a berry?

- Only one of the fruits that we call berries, mentioned in Episode 17 (and on the list above) is botanically and technically a **berry**, and that one is the blueberry.
- The others are aggregate fruits or compound fruits.
- A berry is defined as a simple fleshy fruit with seeds that develops from one ovary in one flower. There's a handy explanation on here if you are studying the parts of plants:
 - ◇ Britannica – Berry plant reproductive body: www.britannica.com/science/berry-plant-reproductive-body
- The episode also tells us that bananas (like our talk show guest, 'Perry!'), grapes, tomatoes, avocados, eggplants, kiwi fruits and even watermelons are simple berries. They are fleshy fruits with seeds that developed from one ovary in one flower.
- Show an image of the parts of a flower and review how the ovary is fertilised through pollination to create one single fleshy fruit with seeds in it – like a blueberry or a grape or a tomato.
- Explore why fruit is important to the reproductive cycle of the plants that produce it. Discuss how animals eat the fruit and disperse the seeds in their manure.



Hello Berry!



- ❓ If a single fruit from a single ovary is a berry, then what is a compound fruit?
- In the episode, Berry never goes anywhere alone. She is made up of many drupelets (tiny fruits) that are stuck together with tiny hairs that work just like hook-and-loop fasteners (like the ones on some shoes!)
- Berry – our aggregate fruit friend – was formed from a flower with *multiple* ovaries.
- Inside the flower the ovaries were separated but were all pollinated at once and developed into one stuck-together fruit group. Aggregate fruit like raspberries and blackberries are great examples of this.
- This source shows photos of the stages of a raspberry flower as it is pollinated and develops into a hollow conical fruit:
 - ◇ Beeker's Berries – The growth of a raspberry: www.beekersberries.com/en/growth-raspberry/
- People tend to call them berries because they are sweet and juicy and delicious but aggregate fruit is the more accurate scientific term for them.
- Here is an image of a flower with a single ovary compared to a flower with multiple ovaries and how these relate to aggregate fruit made up of many drupes.
 - ◇ Backyard Nature – Aggregate fruits: www.backyardnature.net/frt_aggr.htm
- Explain that plant scientists study and document how plants grow and reproduce. Classifying plants with similar characteristics helps us to learn about plants and how to grow them well, even if they are new to us. Sometimes we call plants with similar characteristics *plant families*.
- The study of plants and how they grow is called Botany.

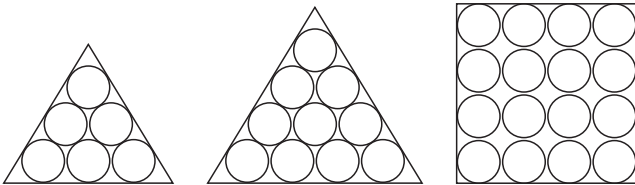
Extended Berry

Depending on your year level and focus, these extensions may complement this lesson or existing lessons.

Mathematics

THE GEOMETRIC BERRY

- Explore patterns in different 'berry' compound fruit compositions.
- Extend questioning to consider 3D conical shapes as well.
- Look at flowers and the 'button' in the centre that develops into the core of a conical compound blackberry or raspberry.
- Why do students think compound fruit are not square?
- Why is the cone shape the most efficient fruit shape for one flower with many ovaries to form?



Science

BERRY HABITAT



- Explore the purpose of fruit in an ecosystem.
- Research the position of a prominent fruit (such as the kangaroo apple) in a food web within a habitat or ecosystem of study.
- Compare the growth and reproduction cycle of a chosen fruit-producing plant with the life cycles of pollinators and primary consumers in the same habitat.
- Explore the forms of plants and of animals and how they are related (e.g. tubular shaped blooms on flowers and long bills on nectar-feeding birds in many Australian habitats.)