

Classification of organisms

Written by Alyce Brownlie



Number of lessons: Three

Year level(s): Year 7 Science

Australian Curriculum content descriptions:

Classification helps organise the diverse group of organisms ([ACSSU111](#))

Achievement standard:

...They predict the effect of human and environmental changes on interactions between organisms and classify and organise diverse organisms based on observable differences...

Context

To introduce students to classification keys and the reason we classify organisms. Students will create a new branch onto an existing classification key, and create an organism that has all of the required traits (based on the existing dichotomous key) and the new trait from the added branch.

Students will be introduced to classification systems, in particular dichotomous keys. Students will spend some time learning about a particular ecosystem, choosing one to focus on for this lesson sequence. Students will 'discover' (create) a new organism that will be able to fit into one of the ecosystem's dichotomous keys. Students will research the ecosystem, design the new organism using characteristics from a dichotomous key of their chosen ecosystem, re-create the dichotomous key to include their new species and write a 'discovery blog' detailing how they came across their new organism. As an extension task, students can also explain how the organism interacts with other organisms in the ecosystem and also explain the benefit to society and the environment of the discovery.

Materials and equipment

For this sequence, students will need to have access to materials to make their 3D model of the new species, I have using plasticine but any other materials could be used. Students will also need access to Science by Doing.

Safety Advice

No safety concerns

Lesson 1

Objectives

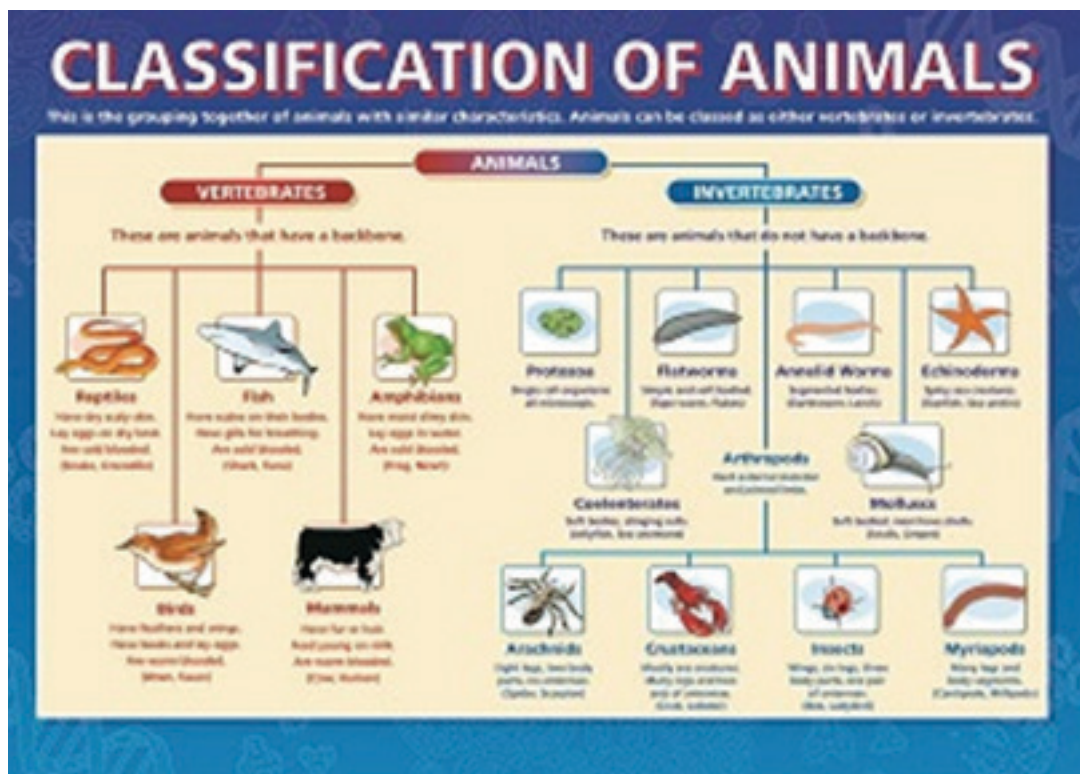
Students will understand why we need to classify organisms and be able to create and interpret dichotomous keys.

Introduction

Students complete a Think/Pair/Share activity, answering the question 'why do we need to classify organisms?'

Core

- Introduce the idea of using a classification tree, based on different physical characteristics, using a generalised classification of animals (below).
- Students should choose two organisms on this tree and describe all of its physical characteristics, in their theory books.

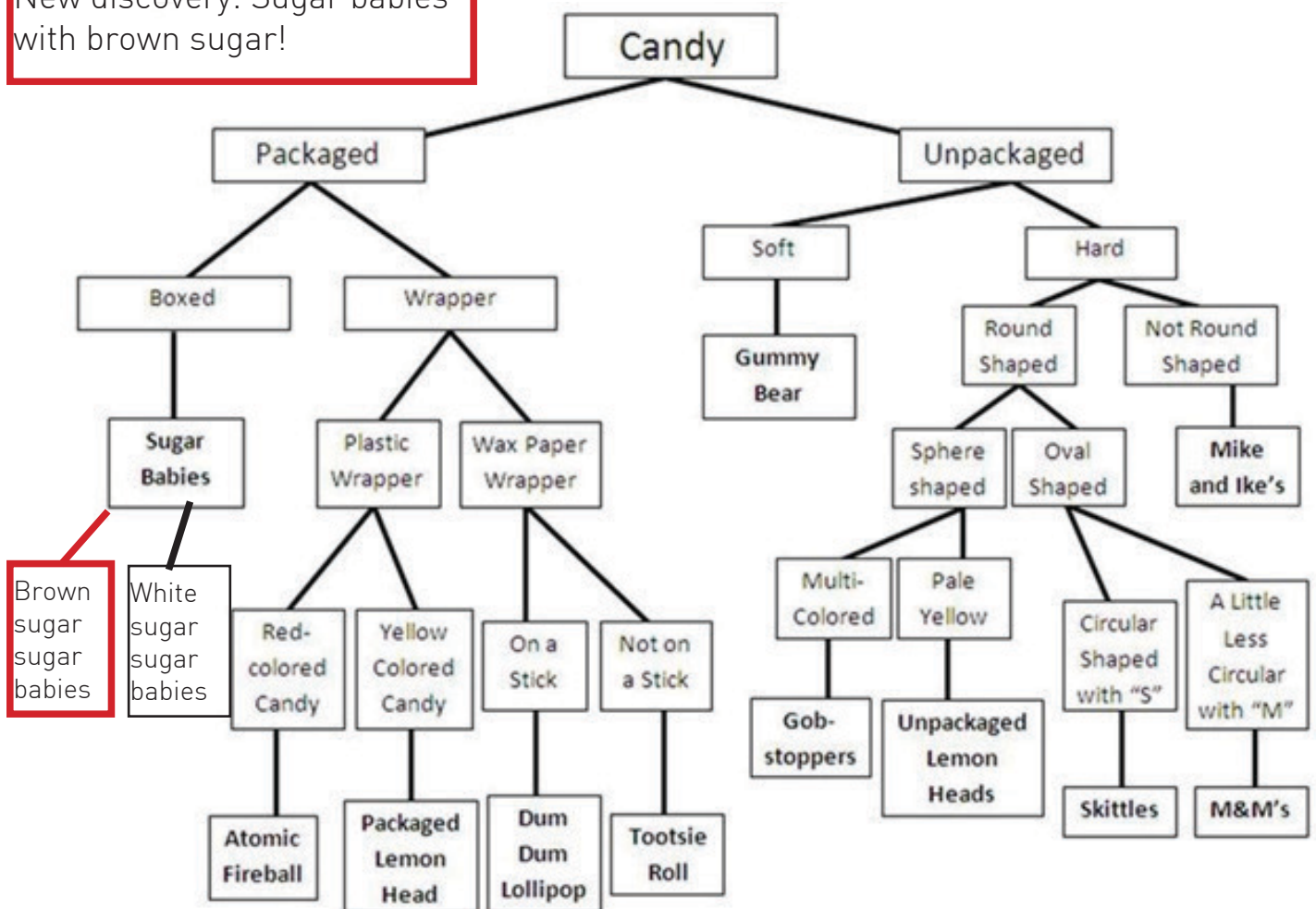


Explain to students that there are different types of keys and introduce the term dichotomous key. Students to write the term and definition in their Vocabulary Books.
 Definition: A dichotomous key is a tool that allows the user to determine the identity of items in the natural world, such as trees, wildflowers, mammals, reptiles, rocks, and fish. Keys consist of a series of choices that lead the user to the correct name of a given item. "Dichotomous" means "divided into two parts".

Students will create their own dichotomous key using the lesson plan and animal cards provided by Science by Doing- Grade 7 activity 3.5

Students will be shown the following example of a dichotomous tree, which has been modified to include a 'discovery'. From this example, I discover a sugar baby that is covered in brown sugar instead of white. I can describe my discovery as a packaged candy, in a box, they are sugar babies and they are brown sugar covered.

New discovery: Sugar babies with brown sugar!



Students will then choose an ecosystem that they would like to focus on. They will be tasked with researching their chosen ecosystem, and finding a simplified dichotomous.

Students will now identify an area of the dichotomous tree that they want to add a feature onto, just like I did in my example. A couple of relevant examples could be shared, for example a newly discovered triple shelled invertebrate from a marine ecosystem.

Students will write in their theory books a description of all of the characteristics that their 'newly discovered' organism must have. For example, in my marine example, it's an invertebrate, that has a shell, and it has three shells (the new branch on the tree).

Conclusion

Recap with students what a dichotomous key is and how we read them. Ensure all students have completed their description of their 'new' species.

Lesson 2

Objectives

Students will create a new organism, based on their chosen ecosystem's existing dichotomous key and including a new physical characteristic.



Core

From the students work in their last lesson, they will use their written description on their newly discovered organism and draw a sketch of what it would look like, in their theory books. They need to ensure they have taken into account all of the required characteristics.

The sketch needs to be checked by their teacher, and all of the traits from the modified dichotomous key pointed out by the student. They are now ready to make a 3D model.

Students will use the provided plasticine to create a palm sized model of their organism, following their sketch closely.

Students will take a photo of their model and upload it to their computers.

Conclusion

Ensure all students have created a new species and remind them that they should check their model for all of the required characteristics to make the dichotomous key true and accurate.

Lesson 3

Objectives

Students will be able to create their own dichotomous key, based on their ecosystem's existing dichotomous key and their newly discovered organism. Students will be able to describe an organism in its natural ecosystem, based on what they know of their existing dichotomous key and the physical characteristics of their discovered organism.

Core

- Students will be asked to create a poster in Power Point that introduces their new organism to the world, with the photo of the model and a modified dichotomous key.
- Students may choose to make their dichotomous key in Paint (or other program), before copying it into Power Point.
- Students will then write a Discovery Blog, as a Canvas Quiz. The blog will need to be written from the point of view of them being a scientist out in the field (of their chosen ecosystem) and how they discovered the new organism. They should mention all of the traits that were introduced using the existing and modified dichotomous key and explain why they have the traits (eg their beak is to break open nuts). The blog should be between 300-500 words. **Extension:** Students can also discuss how this new organism interacts with existing organisms and explain the benefit to society and the environment of the discovery.

Conclusion

Ask a few students to share their modified dichotomous key and their discovery blog. Highlight the need for all the characteristics to be present and how we can look at characteristics and learn about how the organism lives in its natural ecosystem. Ask students why they think their additional characteristic doesn't occur in nature (e.g. my three shelled invertebrate).