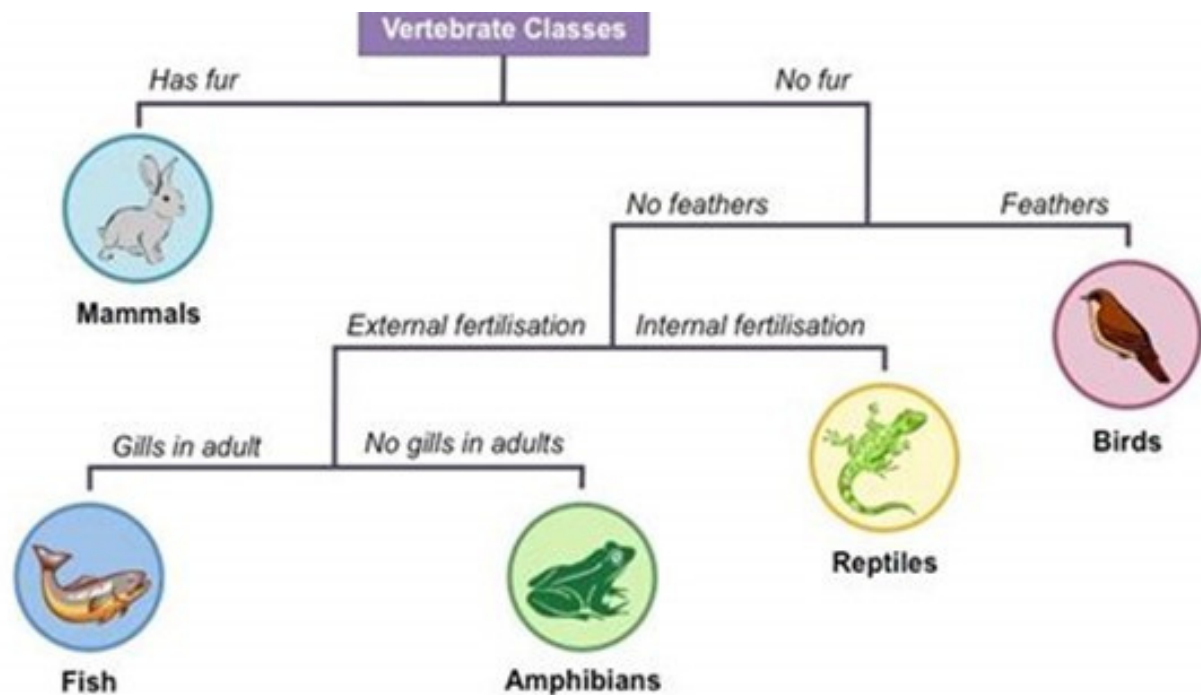


Lesson 1 – Making a pasta key

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Number of lessons: 3

Year Level(s): Year 7

Australian Curriculum content

descriptions:

AC9S7U01

Investigate the role of classification in

ordering and organising the diversity of life on Earth and use and develop classification tools including dichotomous keys.

Achievement standard:

By the end of Year 7 students explain how biological diversity is ordered and organised.

Lesson 1 – Making a pasta key

Context

Classification is a system used by scientists to group and sort living and non-living things based on characteristics they share. Sorting things in this way helps us better understand the world we live in.

Dichotomous keys are tools that help users identify living and non-living things. The word dichotomous comes from two Greek words that together mean, "divided in two parts". In each step of a dichotomous key two choices are given with directions for what to do next. Each choice leads either to another choice or the identity of the object or organism. Some dichotomous keys are lists of questions, while some look more like charts. The key constructed in this lesson will be a chart.

Materials and equipment

- Different types of pasta (at least 5, but the more the better)
- Clear sticky tape or hot glue gun.
- A3 paper
- Pens/ pencils

Safety Advice

If using hot glue gun, ensure it is used in appropriate environment with adequate supervision. Stress that the raw pasta is not for consumption.

Objectives

Use different types of pasta to construct a dichotomous key. See examples in resources section.

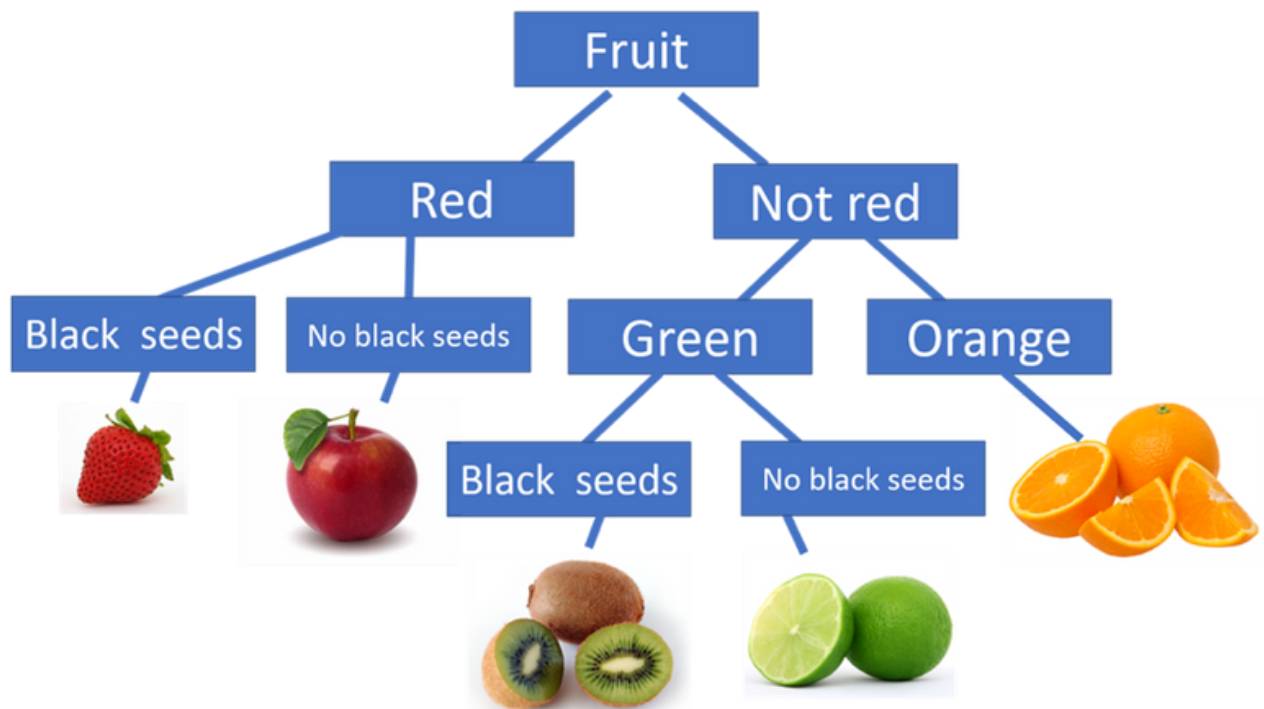
Introduction

Introduce the term dichotomous key to students. See context notes above. Use 5-6 student volunteers to demonstrate how to construct dichotomous key of their physical characteristics. Stress that the trait selected must divide the students into two groups at each stage. For example, the first division might be boy or girl (or something like wearing a dress or not). Continue dividing each group until every student has been "described". An alternative to this might be using several different types of fruit. An example of how this might look is shown below.

Core

Organise students into groups of 3-4. Allocate the following jobs to each member:

- 1 – Pasta expert: collects pasta from front bench.
- 2 – Sticky tape/hot glue gun expert: students responsible for sticking each pasta to A3 sheet.
- 3 – Manager: ensures group members are on task/ has final say on what trait will divide pasta at each stage.
- 4 – Writer: responsible for all writing on A3 sheet. If no 4th member, this role is allocated to manager.



Procedure for students:

1. Pasta expert collects 1 piece of each type of pasta.
2. Sticky tape all pasta types at the top of the page.
3. Decide how you will divide the pasta types in two (remember - dichotomous means to cut in two).
4. Draw 2 arrows from the pasta group with labels showing the chosen trait.
5. Collect another set of pasta, then add them to the traits you have chosen.
6. Repeat steps 3-5 until every type of pasta has been identified.
7. Clean up area and return materials to front bench.

Conclusion

Have students describe each of the pasta pieces using the traits they have chosen. For example, if I were describing a strawberry from the dichotomous key in the introduction, it would be considered a red fruit with black seeds.

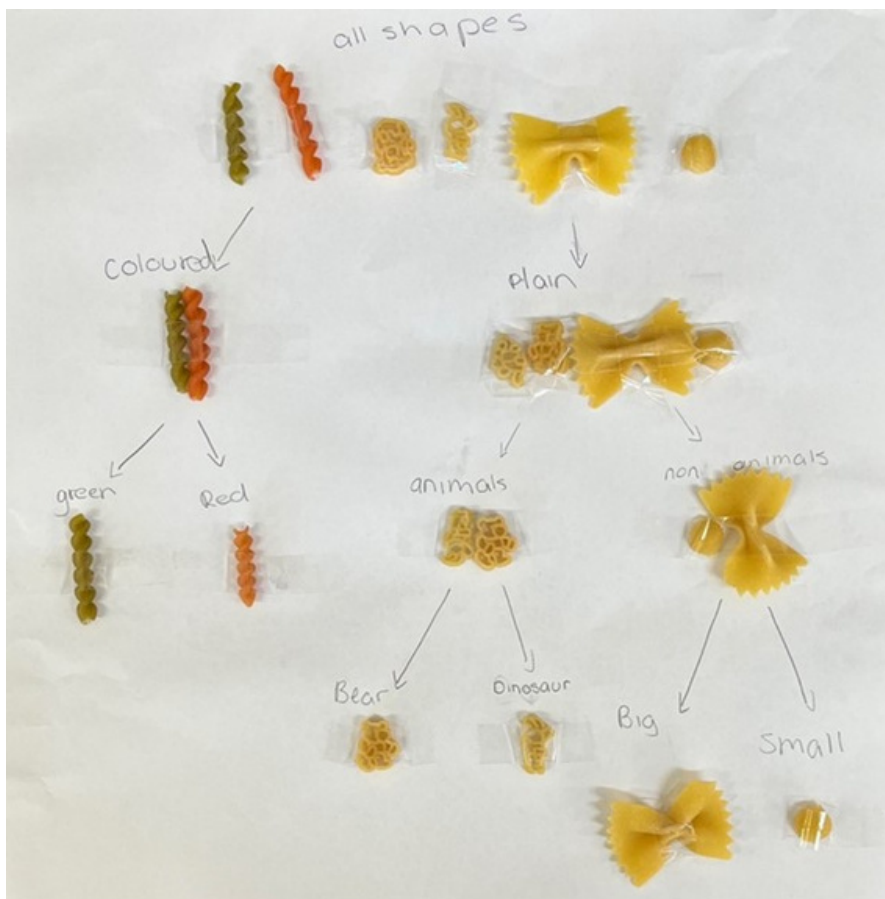
Some follow up activities to consider:

1. Ask students what difficulties they had in sorting the pasta?
2. Get students to use other group's keys. Have them discuss what they liked/disliked about how they divided the pasta.
3. Hang up dichotomous keys around the room and get the class to vote for their favourite.

Resources

Pearson Science 7 2nd Edition
Chapter 6. Page 236

An example of a completed pasta dichotomous key:



Lesson 2 – Classifying animals

Context

Students have just completed pasta sorting practical. They should now be comfortable with identifying traits that split a group into two.

Materials and equipment

A collection of preserved specimens. If this is not available, multiple photos or printouts of various animals, i.e. a card showing a lizard, bird, insect, etc. These should be set up around the room at various stations. Students will rotate between these, so ensure there is enough for roughly 3 students per station

Safety Advice

Be aware that the liquids used to preserve some older animal specimens are hazardous so do not use any specimens preserved in this way.

Objectives

To use structural features to classify animals.

Introduction

Begin with a brainstorm on any animals the students can think of. You will be able to generate quite a few. Start with one well-known animal and ask students to come up with any features that can think of to describe it. Write these down next to the animal. Repeat for a few more. Then ask students to identify broad features that could group all these animals, i.e. has wings, lives in the ocean, etc.

Core

Have students copy the following table into their exercise book/onto their device. Ensure there is enough room in the "key features" column for students to write several points per animal. Include as many rows as animals/ pictures of animals available.

Animal	Key Features

Allocate around 3 students to a station. Once there, they are to complete the following:

- Write the name of the animal (in the "Animal" column).
- Identify features used to describe it (in the "Key Features" column).

Give each group of students roughly 3 minutes per station to complete the tasks above, then rotate to the next station. Once each group has been to every station, return students to their desks. If groups has one scribe during the activity, instruct students to share the information gathered with their group.

Conclusion

This lesson will continue into the next. If there is 5-10 minutes available after the core activity, ask students to identify key features that they observed frequently, e.g. a lot of the animals had legs.

Lesson 3 – Making a dichotomous key

Context

Students have just looked at a variety of animal specimens/pictures and identified some key features. They are now going to use these features and their knowledge of dichotomous keys to create a poster.

Materials and equipment

- Multiple small pictures of each animal used in the previous lesson. Ideally, they should be clear and easy to colour in. See resources for reference.
- Piece of card/paper (A4 or A3) per student
- Coloured pencils.

Safety Advice

None

Objectives

To use the structural features identified in the previous lesson to create a dichotomous key.

Introduction

Recap to students what a dichotomous key is/what does dichotomous mean?

Core

Using either A4 or A3 card, have students create a dichotomous key using the features they identified in the previous lesson. This lesson can run very similar to the first in this sequence, except now the focus is on creating a dichotomous key of animals not pasta. The small pictures of each animal are used instead of the individual pasta pieces. See resources for inspiration.

Encourage creativity. Some students may wish to draw their own animals.

Conclusion

Have students describe each of the animals using the traits they have chosen.

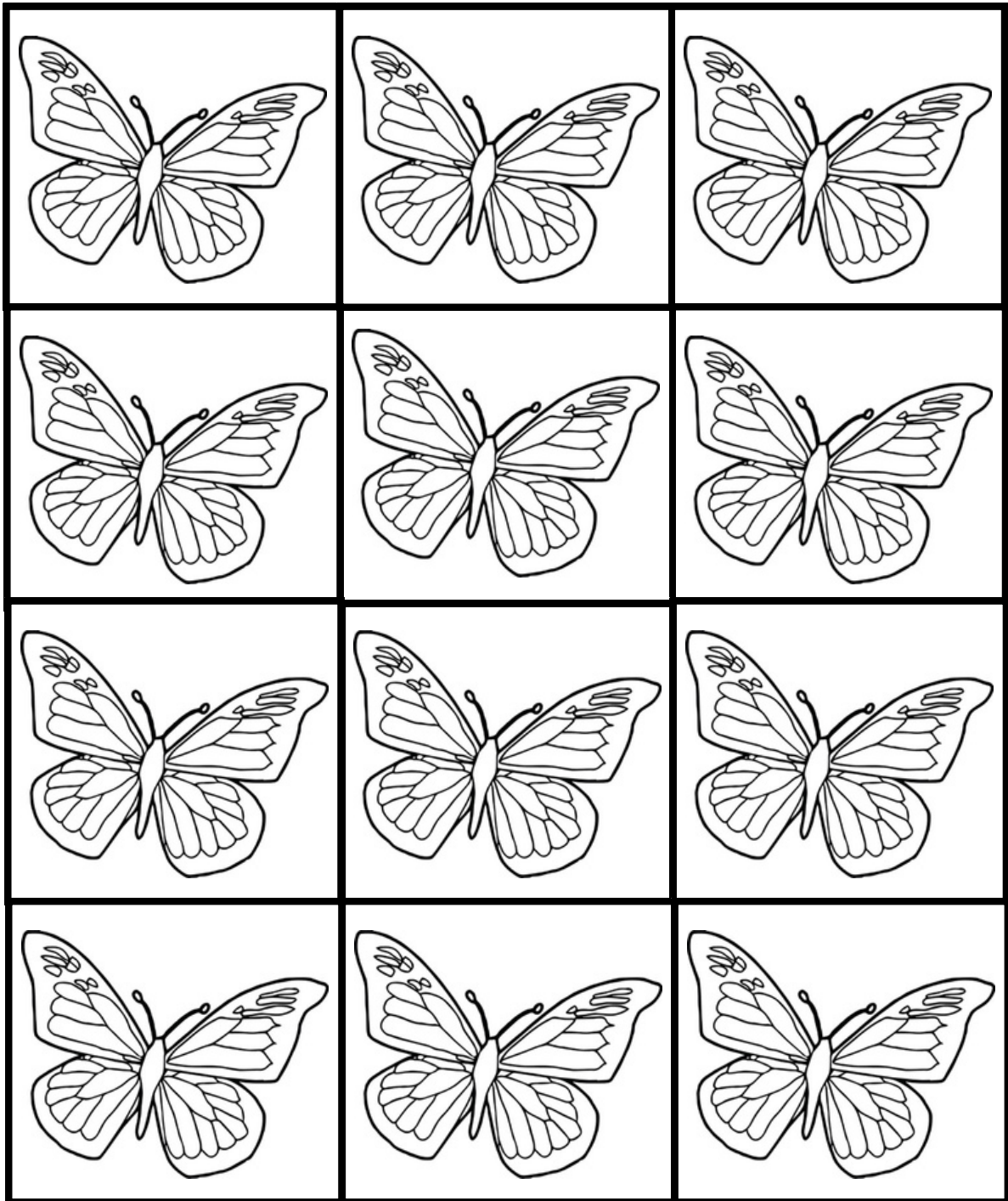
Some follow up activities to consider:

1. Ask students what difficulties they had in sorting the animals?
2. Get students to use other group's keys. Have them discuss what they liked/disliked about how they divided the animals.
3. Hang up dichotomous keys around the room and get the class to vote for their favourite.

Resources

Pearson Science 7 2nd Edition
Chapter 6.

Example printout of 1 animal to then be cut with guillotine for use on student key.



2 examples of what the students should aim for:

