STEM Project

Chapter 5: Classification

Pages 79–100

Drone spotting

At the start of the Second World War, radar was not yet in widespread use. In Britain, the government encouraged soldiers and civilians to memorise the shapes of German and British warplanes to help provide early warning of an attack. They issued flyers, and even playing cards, showing the silhouettes of different warplanes to help people learn and remember them. The task of recognising these shapes would have also been possible using a dichotomous key.

In this activity, you will use the idea of a dichotomous key to classify a range of aircraft.

Plane spotting

Below are nine plane shapes that can be identified by their grid location. For example, the top left-hand plane is A1 and the bottom right-hand plane is C3.

Below is a series of questions to help classify these plane shapes into a dichotomous key. Fill in the empty boxes with the grid location of the planes that result from this classification tree.

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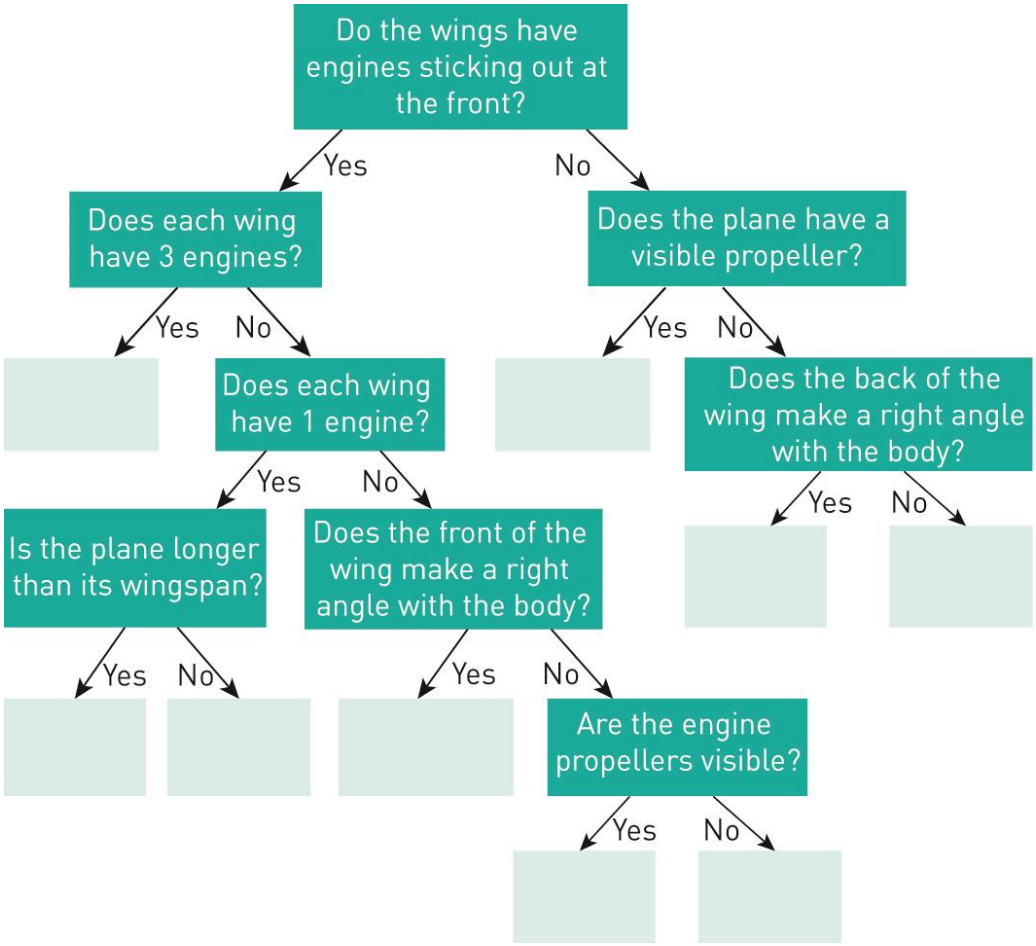

Your turn – drone spotting

Now it's your turn to design a dichotomous key. Imagine your task is to design a flyer for the public in a futuristic war where the only aircraft used are drones. To help people distinguish between the different types of drones deployed, you have been asked to create a series of questions in the flyer to create a dichotomous key for classification.

Use the following steps to create your dichotomous key.

1 Cut out the drone silhouettes from the attachment at the back of this activity.

2 Give each drone a name and write it on the back of your cut outs.

3 Think about the physical characteristics of each of the drones and split them into two groups with similar characteristics and note down the basis of this split.

4 Split your two groups into two sub-groups with similar characteristics. Again, note down the basis of the split.

5 Continue splitting your groups into smaller and smaller groups until you only have one drone in each group.

6 On a page of butcher's paper, create a dichotomous key to classify your drones. Label each final subgroup with the name of the relevant drone.

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Test your key

Swap dichotomous keys with someone else in the class. Each of you choose five of the cut-out drones to test. See if each of you can determine which drone your cut-outs represent using your partner's dichotomous key. Check if you are correct by checking the name of your drone on the back of the cut-out.

Once complete, answer the following questions for each other:

How easy was the dichotomous key to use? What made it easy/difficult?

How could the key be modified to make it clearer or easier to use?

Using the feedback from your partner, make some improvements to your dichotomous key and redraw it on another piece of butcher's paper.

Discussion and reflection

For the people of Britain in the Second World War, what might have been some advantages of using a dichotomous key over trying to memorise or match a plane to a page of silhouettes?

What might have been some disadvantages of using a dichotomous key over trying to memorise or match a plane to a page of silhouettes?

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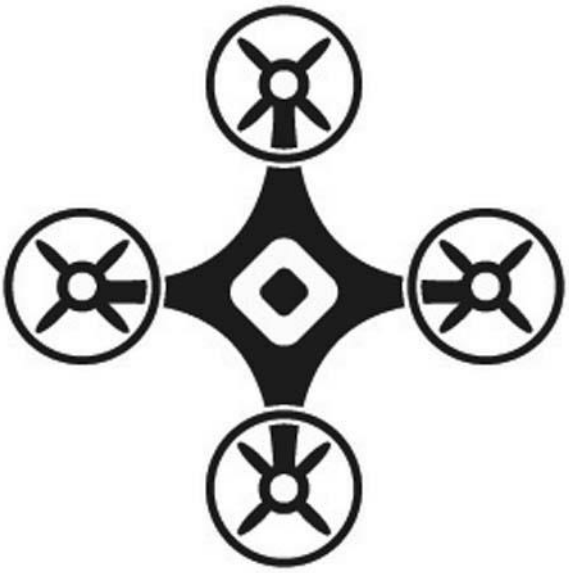
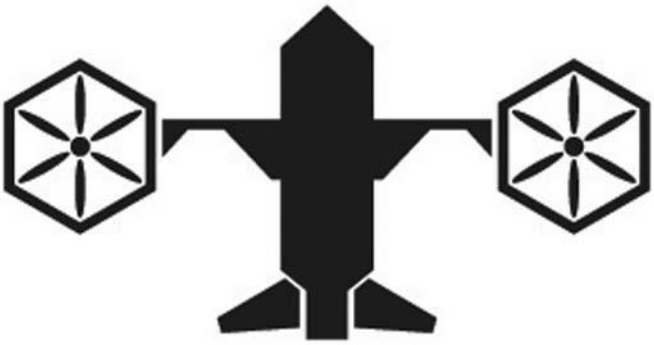
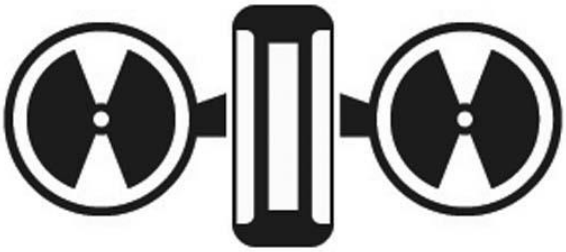
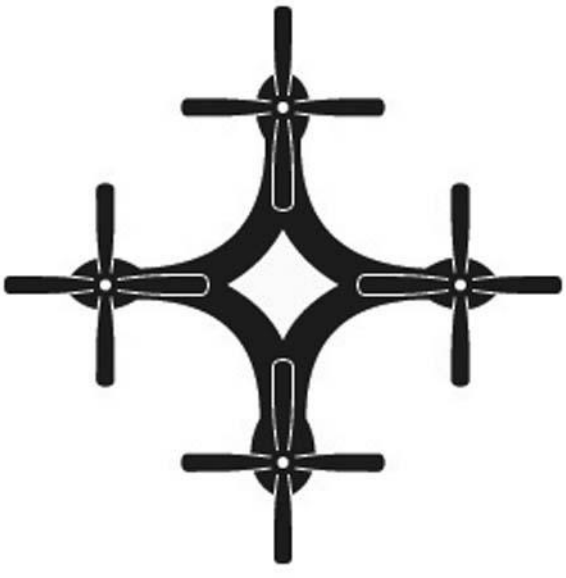
For what other applications might a dichotomous key be useful?

Drone silhouettes









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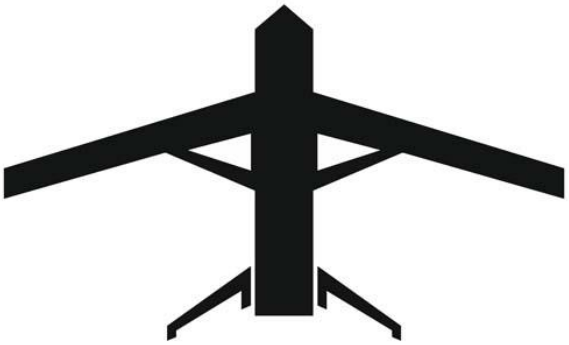

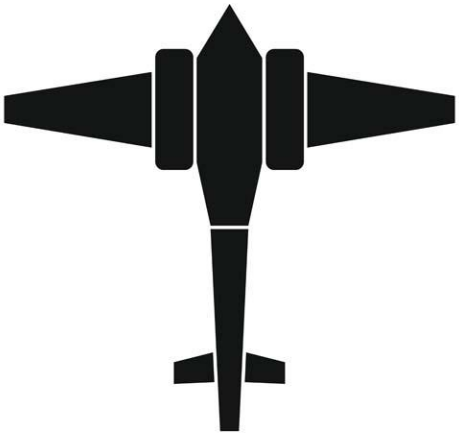

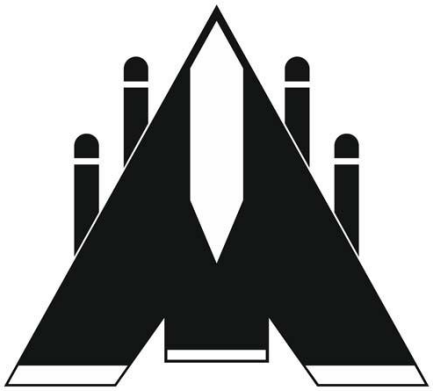

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