

Decode a waggle dance

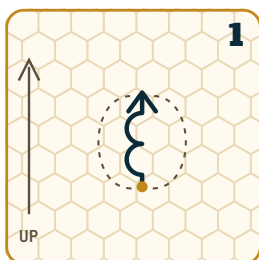
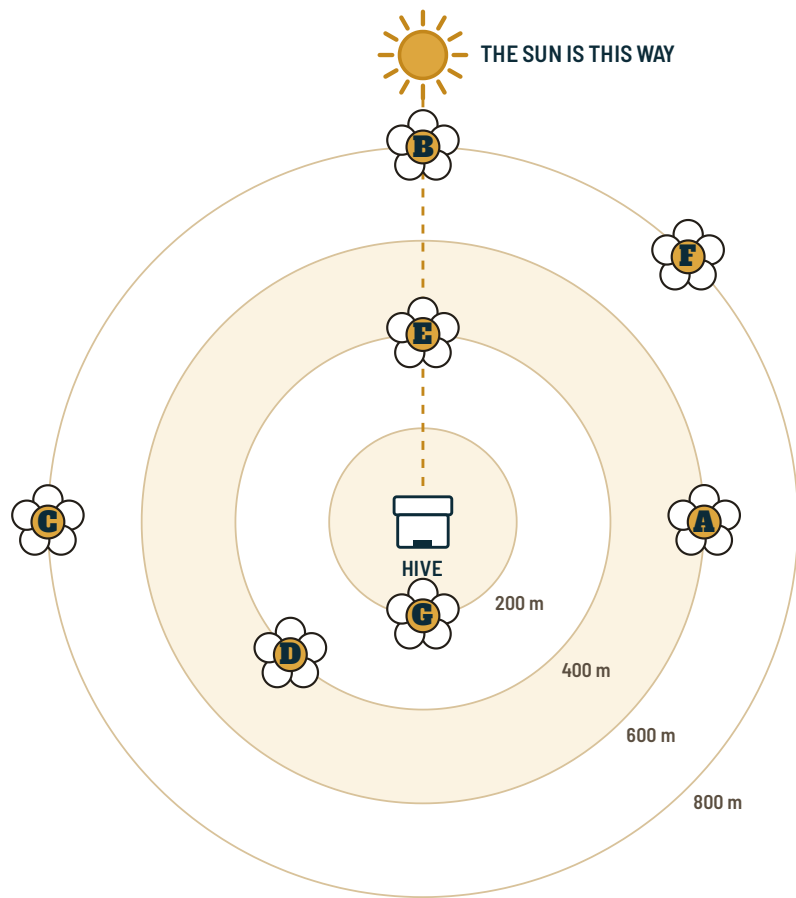
When a honeybee finds good flowers, she flies home and dances on the honeycomb to tell her sisters where to go. Can you read the dances and find the flowers?

How to read a dance

1. Which way? On the comb, straight **up** means **towards the sun**. The wiggly line points the way to fly. If it points up, fly towards the sun. If it leans right, fly to the right of the sun.

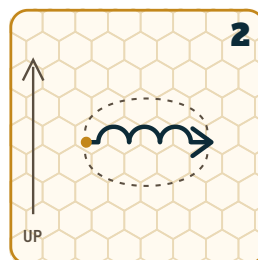
2. How far? Count the wiggles. On this sheet, each **wiggle means 200 metres**. Two wiggles means 400 m.

The gold dot is where the dance starts. The dotted loops are the bee walking back round to dance again.



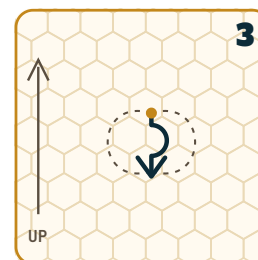
Wiggles:

Flower:



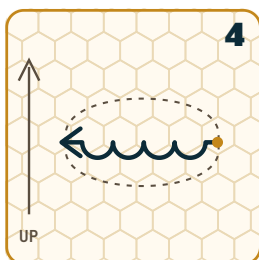
Wiggles:

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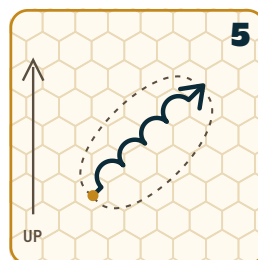
Wiggles:

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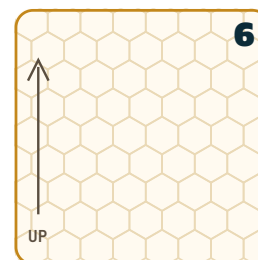
Wiggles:

Flower:



Wiggles:

Flower:



Challenge:
draw the
dance for
flower D

Decode a waggle dance

What pupils learn

- Honeybees share information about food by dancing. The direction of the "waggle run" gives the direction to fly, measured from the sun. Its length gives the distance.
- Describing a direction as a turn from a reference line, and turns as angles (straight on, a quarter turn right, a half turn, 45°).
- Reading a simple scale on a map.

Links to the curriculum

- **Science:** living things and their habitats; animals, including how they get food.
- **Maths (geometry):** angles as turns; right angles; comparing angles; position and direction.
- **Geography:** using directions and simple map scales.

Running it

1. Show the class that on the comb inside the dark hive, "up" stands for the sun. Do dance 1 together.
2. Pupils decode dances 2 to 4, then the challenge dances 5 and 6.
3. Act it out: one pupil waggles across the classroom at an angle to a "sun" on the wall, and the class points where to fly.

Answers

Dance	Direction	Wiggles	Flower
1	Straight up: towards the sun	2 (400 m)	E (not B, which is 800 m)
2	Quarter turn right	3 (600 m)	A
3	Straight down: away from the sun	1 (200 m)	G
4	Quarter turn left	4 (800 m)	C
5	45° right of up	4 (800 m)	F
6	Flower D: pointing down and to the left, 45° left of straight down (135° left of up), with 2 wiggles.		

Good to know

- "Each wiggle is 200 m" is a classroom simplification. Real bees measure distance by the *time* spent wagging. Roughly, one second of wagging means about a kilometre, and it varies a little from colony to colony.
- For flowers very close to the hive, bees do a simpler "round dance" with no direction.
- As the sun moves across the sky, dancing bees change their angle to match.
- Karl von Frisch decoded the dance and shared the 1973 Nobel Prize for it.

Going further

Read *The waggle dance* at bassitt.co.uk/learn/bee-basics, or play **Hive Mind** at bassitt.co.uk/learn/hive-mind. Click any flower patch to see the real dance that points to it.