Ancestors of a Male Bee KS2
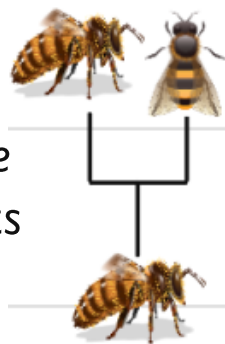
Maths Explorers

Queen Bees
(mother, female bee)

Draw an ancestry chart
and cut out and stick
bees in the right place
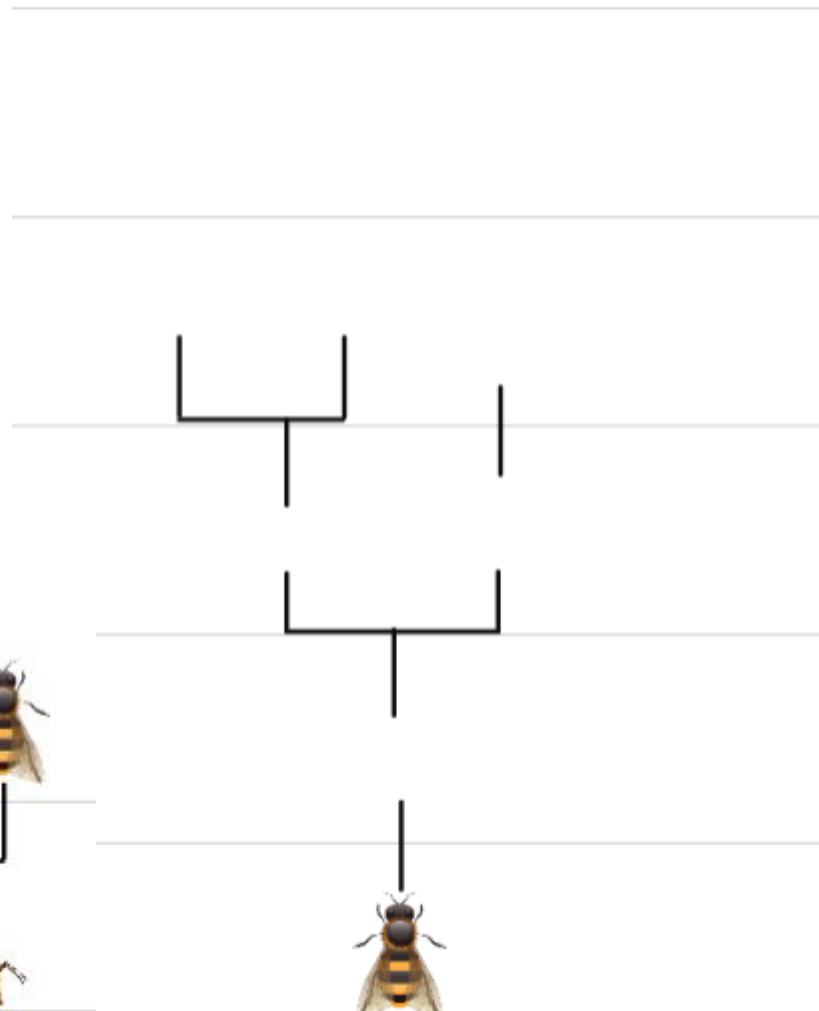
Drones
(Father, male bee)

A female bee
has 2 parents

A male bee has
just 1 parent

Ancestors of a Male Bee

KS1

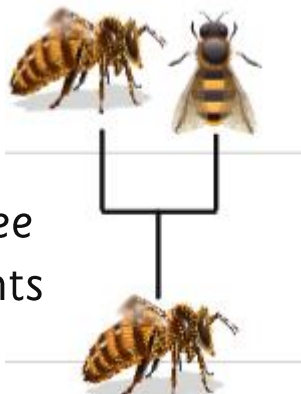Maths Explorers

Queen Bees
(mother, female bee)

Cut out and stick bees
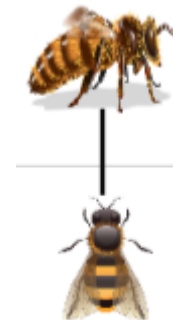in the right place on
this ancestry chart

Drones
(Father, male bee)

A female bee
has 2 parents

A male bee has
just 1 parent

Pollinating the Plants

Bees help plants produce seeds by taking pollen from one plant to another plant.

Bees also consume the Nectar flowers produce

A worker bee has enough energy to travel six lengths of a square on a full tummy.
If the bees can refuel at each flower, how many of these flowers can your bee get to and still get back to the hive?
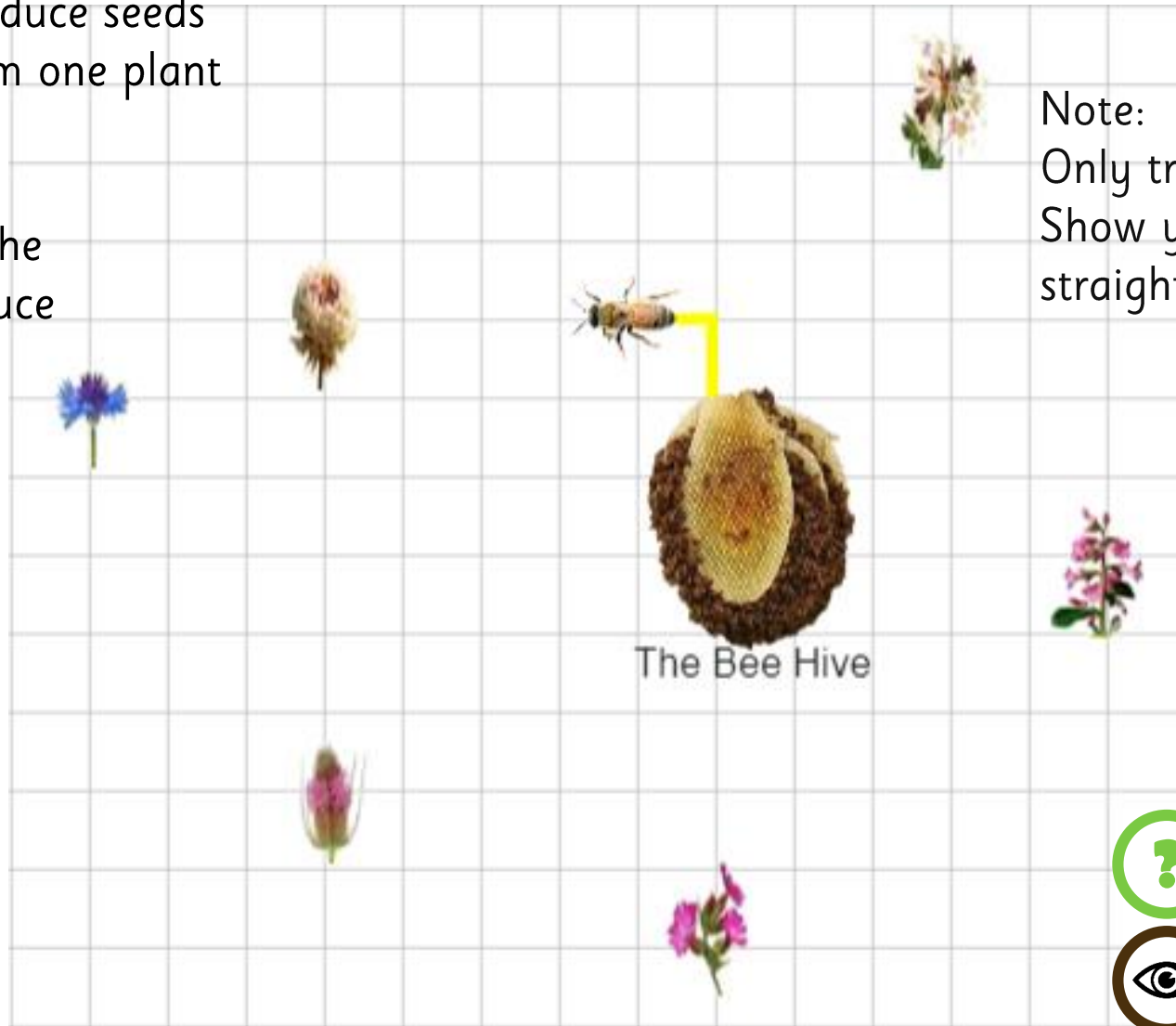
Note:
Only travel on the lines
Show your route using straight lines

The Bee Hive

? Questions

👁 Observations

What path should this bee travel on to get to the most flowers?

Fibonacci Sequences

The sequences of numbers of ancestors in each generation for bees are known as a Fibonacci sequence and they were made popular by a very important mathematician, also known as Leonardo of Pisa (where the leaning tower is)

Fibonacci sequences are made by getting the first 2 terms for the sequence (you can choose those as you like) and making the 3rd term by adding those two together, and then all subsequent numbers by adding the previous two terms together.

Term 1   Term 2

Example: Start with 4 and 6   4, 6, __, __, __, __, __, __, __, __

See if you can find the 10th term in this sequence

The third term will be 4 + 6 = 10

The fourth term will be 6 + 10 = 16

$$4, 6, \_\_, \_\_, \_\_, \_\_, \_\_, \_\_, \_\_, \_\_$$

Let's look at that sequence with bees

Imagine a group of 4 bees. How many different possible combinations of female/male bees can you find?

Which combination produces the sequence we saw on the last page i.e. 4, 6, 10, 16, __, __ ?

(remember Male bees only have one parent. Female bees have two.)

E.g.

| 20 |
| 12 |
| 8 |
| 4 F F F F |
| 4 🐝 🐝 🐝   🐝 |

🐝
Male bee

🐝
Female bees

| 4 |
| 4 |
| 4 |
| 4 |

Fibonacci Sequences

Can you complete these Fibonacci Sequences?

3, 5, ___, ___, ___, ___, ___, ___, ___, ___, ___ KS2

4, ___, 9, ___, 23, ___, ___, ___, ___, ___ KS2

___, ___, 7, ___, ___, 31, ___, ___, ___, ___ KS3

6, -3, ___, ___, ___, ___, ___, ___, ___, ___, ___ KS3

Try creating your own Fibonacci Sequences

____, ____, ____, ____, ____, ____, ____, ____, ____, ____

____, ____, ____, ____, ____, ____, ____, ____, ____, ____

____, ____, ____, ____, ____, ____, ____, ____, ____, ____

____, ____, ____, ____, ____, ____, ____, ____, ____, ____

Try using an algebraic sequence to solve these ones

_a_ , _b_ , _a+b_ , ____ , ____ , ____ , ____ , ____ , ____ , ____

2a + 3b = 27

b = 7

a = ?

____ , _7_ , ____ , ____ , _27_ , ____ , ____ , ____ , ____ , ____

____ , ____ , ____ , ____ , _27_ , ____ , ____ , _109_ , ____ , ____

____ , ____ , _10_ , ____ , ____ , ____ , ____ , _115_ , ____ , ____

KS2 KS3

Maths Explorers
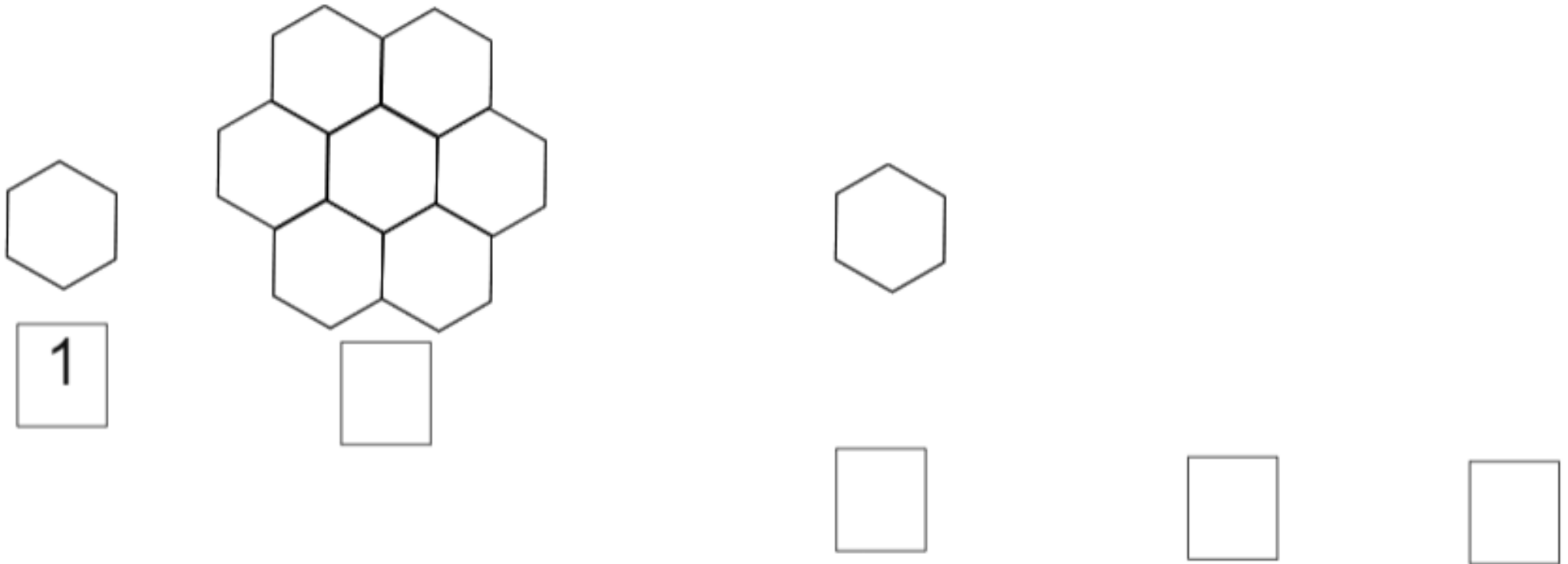
Construct your Hive

There's a Bee colony that likes not only to build hexagonal pods but likes each layer to be hexagonal.
What different sizes of hive layer can you make with these hexagons?

1

If you needed to build a hive for 45 bees...

...how would you like to arrange the hexagons? Draw your hive here. Use the dots to help you.

If you needed to build a hive for 45 bees…

…where each layer is a hexagon made with hexagonal pods

Which size layers would you use?