

Multiplication Problems

Learning Objective:

To use systematic and logical methods to solve correspondence problems.



Let's play a game!

You play this game with a partner.
Write a number between 1 and 100 on your sticky note.

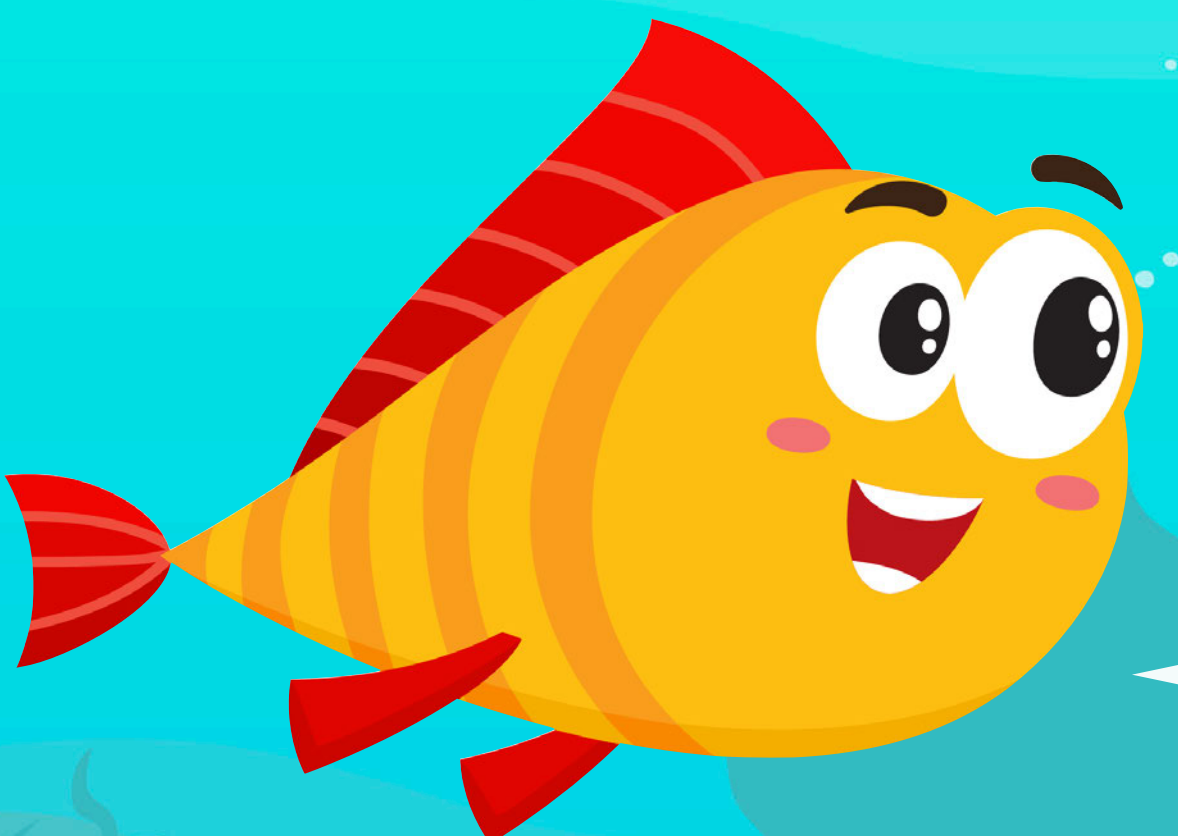
Stick your number to your partner's forehead.

Don't let your partner see the number you've written! They have to guess it.


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Now you take it in turns to ask questions about the number stuck to your forehead until you have enough information to guess what it is.



So you could ask:
'Is the number an odd number?'



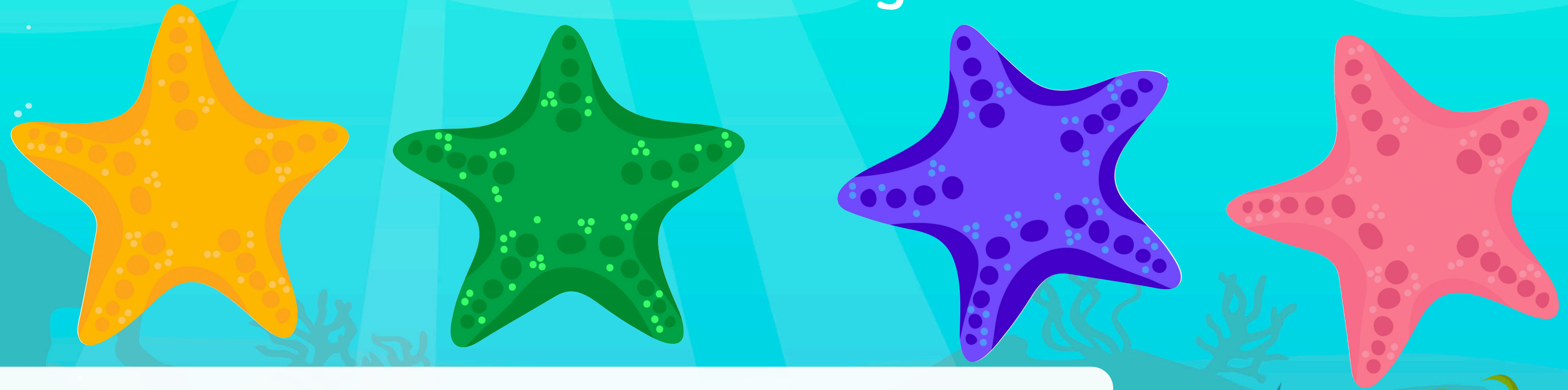
Your partner is only allowed to answer yes or no to your question.

Challenge: Can you ask questions using the word: multiple?

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The aquarium director is planning which starfish are going into a smaller tank. Each tank can hold two starfish. Here are all the starfish that could go into the tank.



The director wants to see a list of all the possible combinations of two starfish that could go into the smaller tank. How are we going to list all the different pairs of starfish?

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Think systematically. This means to have a plan for your thinking, rather than choosing random pairs.

Choose one starfish and find all the possible pairs you can make with that starfish.



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Here's my list so far.
Can you see how I've found
all the pairs including the
orange starfish?



Explain why this pair

would not be included on my
list now.

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This pair is a repeat of a pair I already have. They're just in a different order.



We still haven't found all of the possible combinations of starfish.

What would you do next?

Remember to think systematically!

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Now I've done the same with a new starfish. This time I needed to check for any repeated pairs and rub them off my list.



Keep repeating these steps until you have found all the pairs, without repeating them.



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Did you find ten pairs?
Well done if you did!
Let's try another...



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Cindy is in charge of feeding these
three penguins:



Beaky, Flippers and Pebbles.

Sometimes the penguins become upset if
the same penguin always gets fed first,
or if they always get fed last.



Could you help Cindy figure out all the
different orders you could feed these
penguins in?

Remember: think systematically!

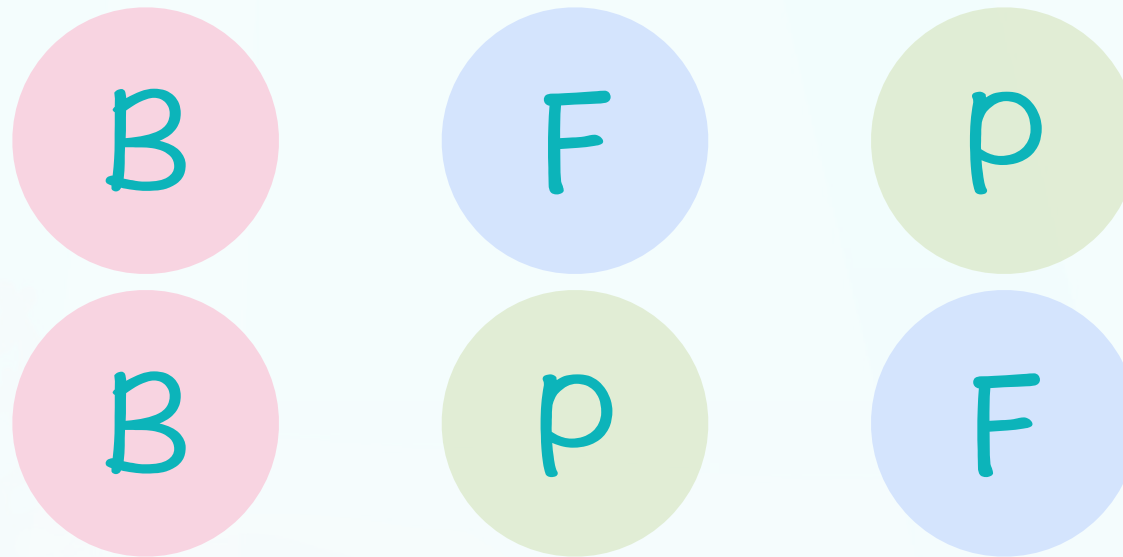
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Beaky, Flippers and Pebbles

Let's find out all the different combinations where Beaky gets fed first.



Can you figure out the rest on your own?

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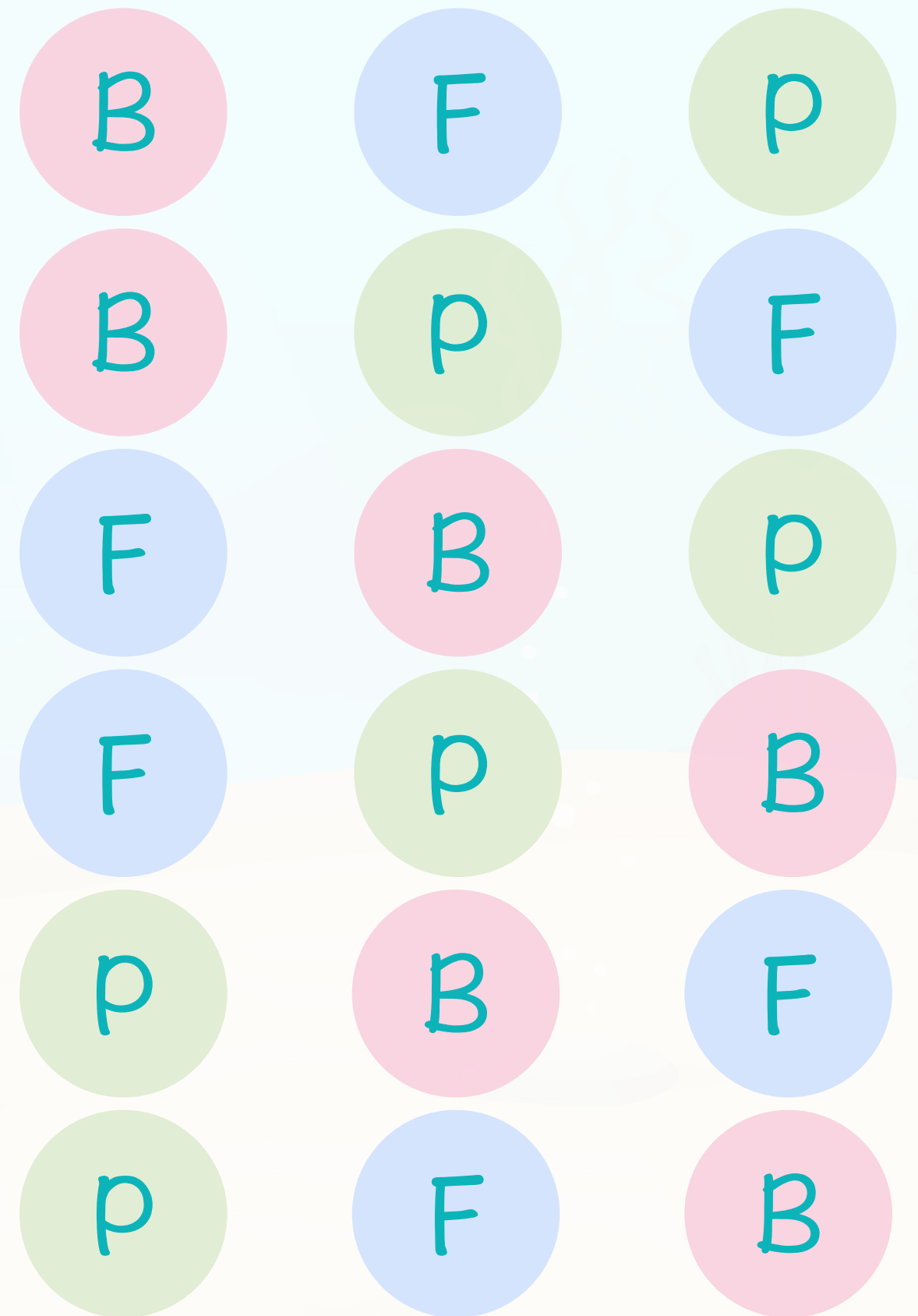
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Beaky, Flippers and Pebbles

Did you find the six
different orders
they could be fed
in?


That looks much
fairer to me!



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The director of the aquarium wants to make sure there are at least ten different drink options visitors can order from the café.



Are there ten different drink options on this menu?

All drinks can be ordered in small, medium or large sizes.

Tea
Coffee
Hot Chocolate

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The director of the aquarium wants to make sure there are at least ten different drink options visitors can order from the café.



Oh no! There are only nine options. Looks like the menu needs changing.

Small tea
Small coffee
Small hot chocolate
Medium tea
Medium coffee
Medium hot chocolate
Large tea
Large coffee
Large hot chocolate

All drinks can be ordered in small, medium or large sizes.

Tea
Coffee
Hot Chocolate

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Plenary

Now that you've become experts in solving this kind of problem, what are some top tips you would give someone who is less confident?

