Contents: Chapter 6

Odd One Out 150

Can you find something about each word below that makes it different from the other three?

PUMA pear LIME PEACH

Categories 162

How many perfect squares are there between 10 and 20? How many prime numbers are between 10 and 20?

Circle Diagrams 178

What's your favorite Kooky Critter?

Chapter 6:
Categories

R & G
Odd One Out

That's weird.

What?

One of these chairs is different from all the others.

Oh, yeah.

This one is different from all the others.

That one?

I meant this one.

What's different about the red one?

What makes each chair different?

The others are all the same height...
...but the red one is taller.
Oh, yeah. You're right.
What makes the yellow chair different?
It has two holes in the back.
The others all have three.
Neat! I didn't notice.
There's something different about this green chair, too.
Don't tell me.
I'll figure it out.
What makes the green chair different?

What's different?

The holes!
On the blue chair, the holes are all rectangles.
But the holes are rounded on all of the other chairs.

Each chair is different in its own way.
Which one is your favorite?
I like that one!

Whoa!

Lunch Categories

What are you little monsters up to?

We're drawing shapes.

Squares are my favorite!

I like rectangles.

There are so many different ones!

A RECTANGLE IS A SHAPE WITH FOUR SIDES WHERE ALL FOUR CORNERS ARE THE SAME.

They can be tall and thin...

...or short and stubby.

Rectangles can even be squares!*

*A SQUARE IS A SPECIAL KIND OF RECTANGLE WHERE ALL FOUR SIDES ARE THE SAME.

There are lots of kinds of shapes.

There are different kinds of numbers, too!

Really?

Yep!

You're going to blow my mind again, aren't you Ms. Levans?

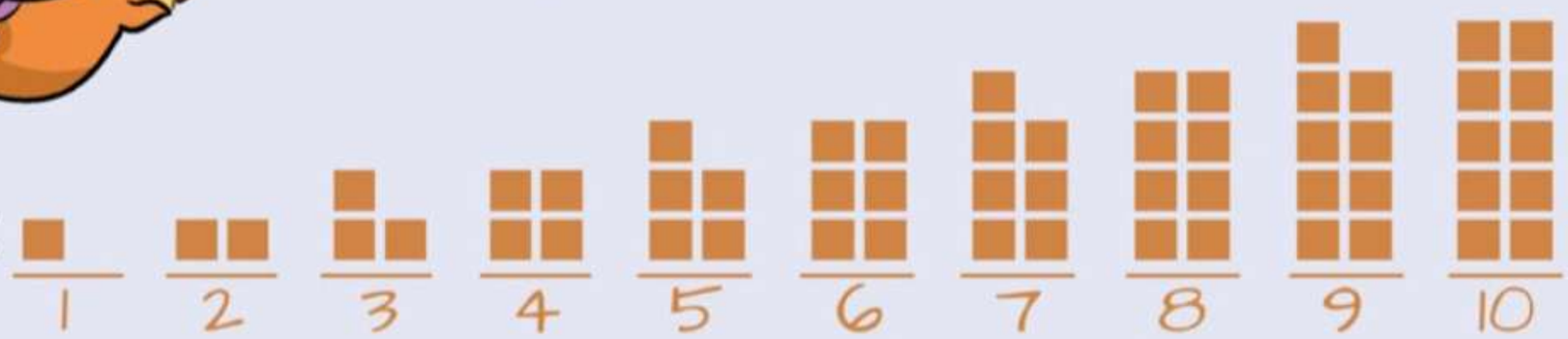
I hope so, Grogg!

Can I borrow these?

Sure!

Let's make the numbers 1 through 10 with two lines of crackers.

Do you notice any patterns?



What do you notice?

When we make two stacks with 2, 4, 6, 8, or 10 crackers...

...the two stacks are the same.

But for 1, 3, 5, 7, and 9, one stack is taller than the other.

1 2 3 4 5 6 7 8 9 10

That's right!

Numbers that can make two equal stacks of crackers are called ***even*** numbers.

We say the even numbers when we count by 2's.

2, 4, 6, 8, 10, 12, 14, 16...

And since every even number is two equal stacks...

18

9+9

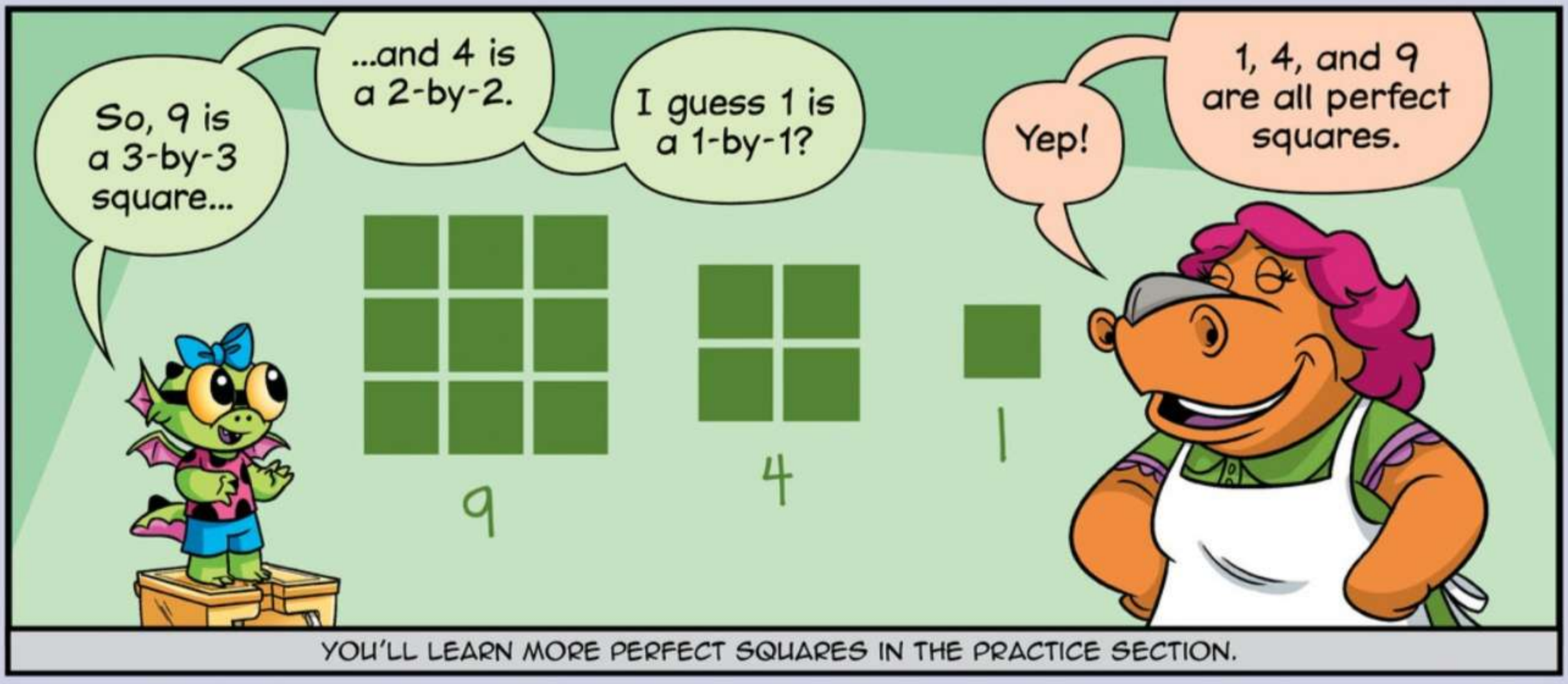
...if you add a number to itself, like 9+9, you always get an even number.

Yep!
The numbers in-between are called **odd** numbers.
If you try to split an odd number into two equal lines...
...one line always has an extra cracker.
13

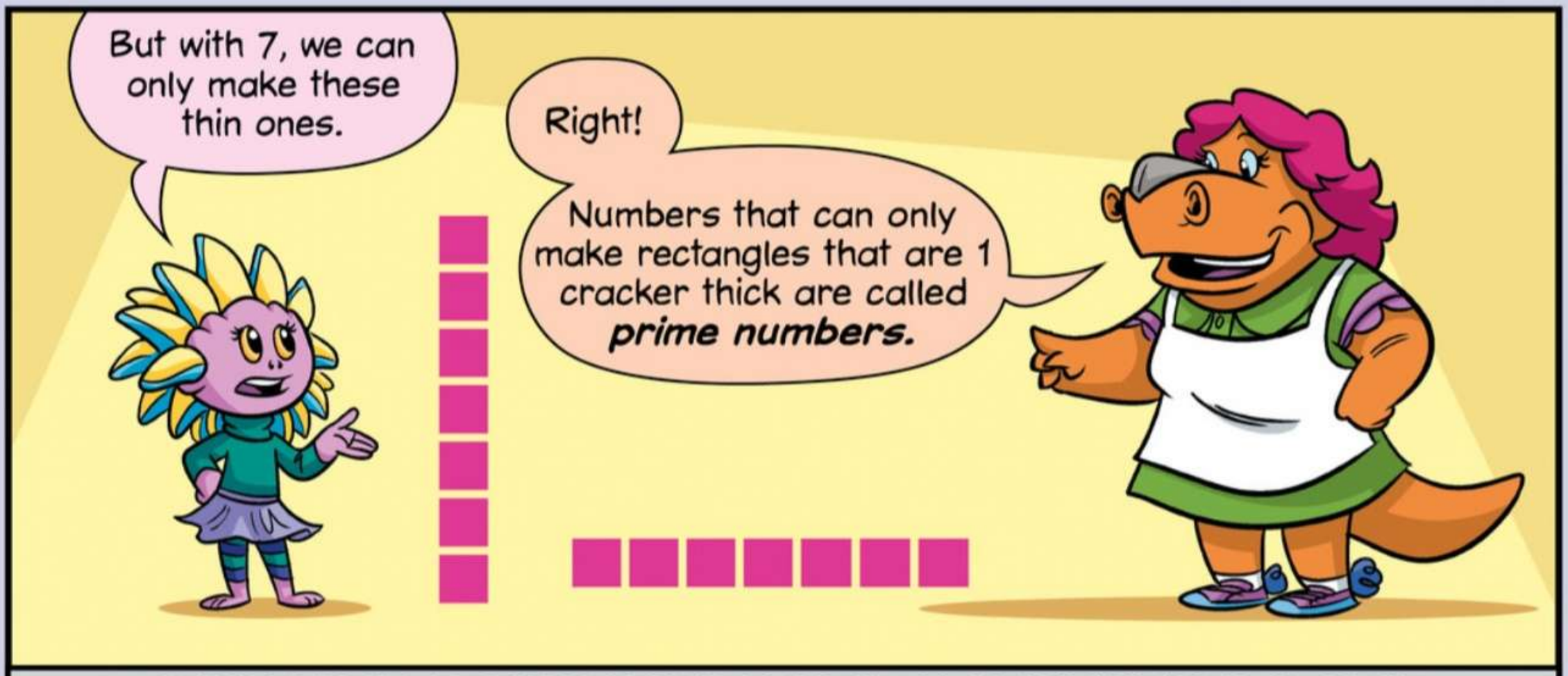
But if we add 1 to any odd number, we get an even number.
We make the stacks equal again.
That's right, Alex.
13 + 1 = 14

Let's look at another way to arrange crackers.
Can you make a square with 4 crackers?
How about 5?
Try it.

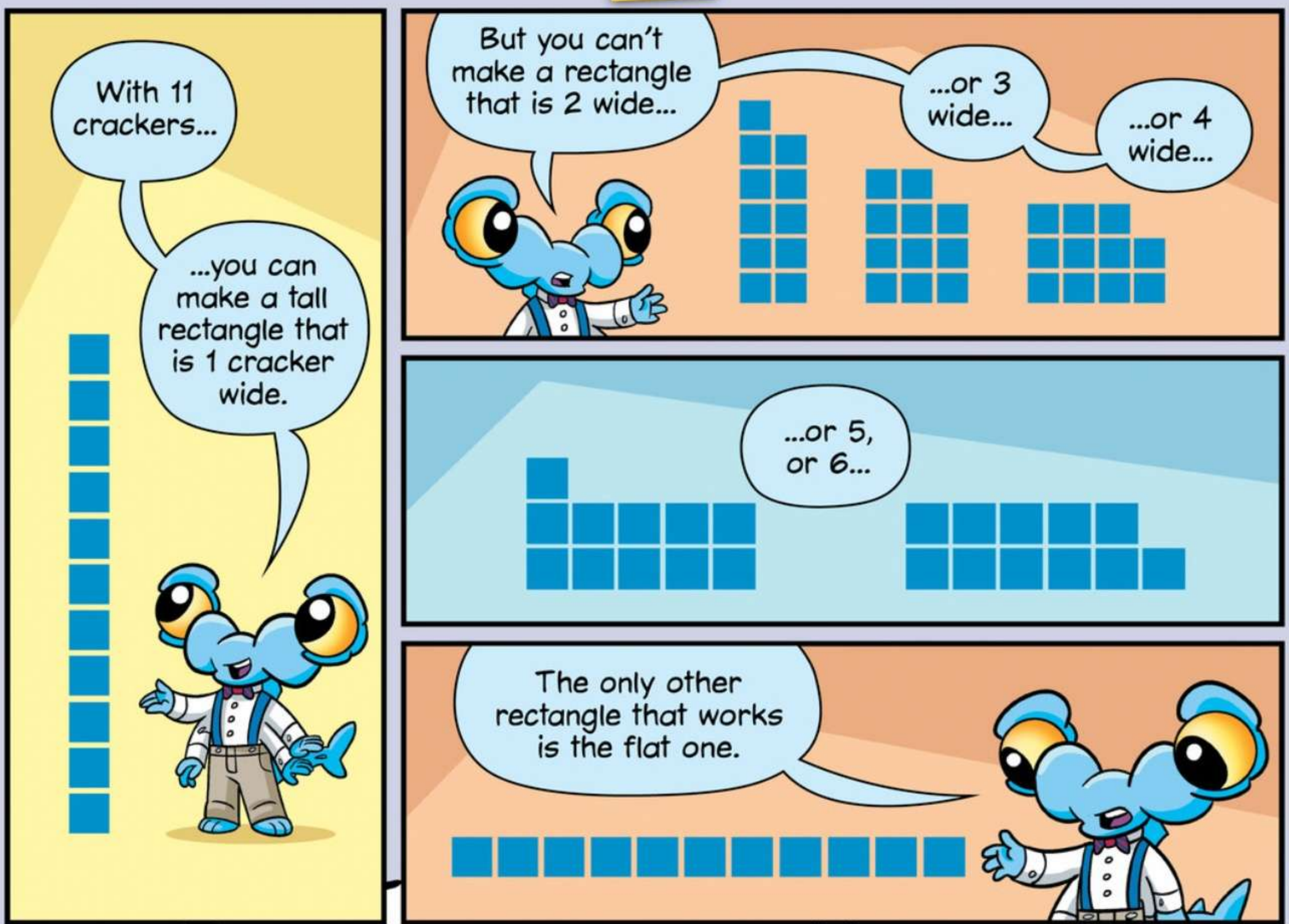
ROWS GO LEFT-TO-RIGHT ↔, AND ***COLUMNS*** (CALL-UMS) GO UP-AND-DOWN ↕.
THINK OF TALL COLUMNS ON OLD BUILDINGS TO HELP YOU REMEMBER.



YOU'LL LEARN MORE PERFECT SQUARES IN THE PRACTICE SECTION.



NUMBERS THAT CAN MAKE OTHER RECTANGLES ARE CALLED ***COMPOSITE*** (COME-PAUSE-IT).


With 11 crackers...
...you can make a tall rectangle that is 1 cracker wide.
But you can't make a rectangle that is 2 wide...
...or 3 wide...
...or 4 wide...
...or 5, or 6...
The only other rectangle that works is the flat one.

So, 11 is prime.
Prime Time!!
It's prime time!

Ms. Q.
CIRCLE DIAGRAMS
Who knows what these are?
Oooh! Kooky cards.
I love these.
They have all kinds of crazy imaginary creatures.
Look at this one!
Whoa.
Ostrich
7 HP
Height: 9' Weight: 320 lbs
Legs: 2 Wings: 2 Arms: 0
Speed:
Strength:
Stamina:
Special Ability:
Intelligen
Whoever makes these up has a wild imagination.
They sure do!
How would you describe that Kooky critter?

It has a tiny head with a beak.

And a long skinny neck.

Ostrich 7 HP

Height: 9' Weight: 320 lbs Tail: ✓
Legs: 2 Wings: 2 Arms: 0 Eyes: 2

Speed: ●●● Stamina: ●●●
Strength: ●●● Intelligence: ●
Special Ability: Savanna Dash

It doesn't have arms.

But it has two skinny legs.

It's called an ostrich.

An ostrich is a bird.

Here are some other Kooky critters that are birds.

What traits do birds have in common?

Pelican 3 HP
Speed: ●● Stamina: ●●
Strength: ●● Intelligence: ●●
Special Ability: Big Gulp

Penguin 4 HP
Speed: ●● Stamina: ●●●
Strength: ● Intelligence: ●●
Special Ability: Arctic Dive

Turkey 3 HP
Speed: ● Stamina: ●
Strength: ●● Intelligence:
Special Ability: Tail Spin

Parakeet 2 HP
Speed: ●● Stamina: ●●
Strength: Intelligence: ●●
Special Ability: Sonic Screech

Chicken 1 HP
Speed: ● Stamina: ●
Strength: ● Intelligence: ●
Special Ability: Power Peck

Parrot 4 HP
Speed: ●● Stamina: ●
Strength: ● Intelligence: ●●●
Special Ability: Talk Back

Owl 6 HP
Speed: ●●● Stamina: ●●
Strength: ●● Intelligence: ●●●
Special Ability: Night Vision

Duck
Speed: ●● Stamina: ●
Strength: ● Intelligence: ●
Special Ability: Duck Blur

Can you think of some?

It looks like all birds have two eyes.

Lizzie is right.

I found all 24 Kooky birds.

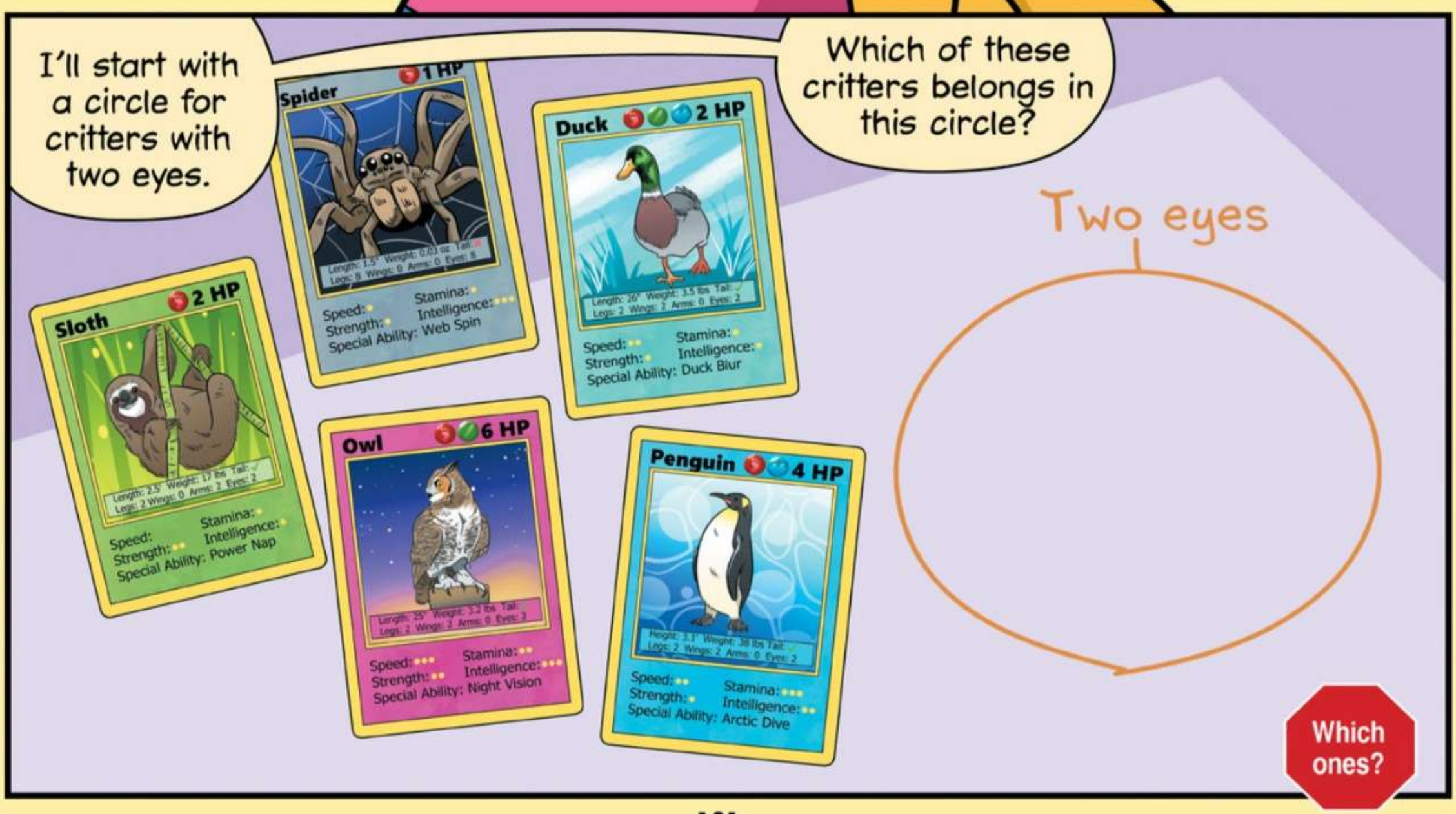
They all have two eyes.

Good! Having two eyes is something all birds have in common.

What do you think?

Nope. This critter has two eyes...
...but it's not a bird.
Just because every bird has two eyes...
...doesn't mean that every two-eyed critter is a bird.

That's right.
We can draw two circles to show how birds are related to critters with two eyes.
Things only go in a circle if they are part of that group.


I'll start with a circle for critters with two eyes.
Which of these critters belongs in this circle?
Spider 1 HP
Duck 2 HP
Sloth 2 HP
Owl 6 HP
Penguin 4 HP
Two eyes
Which ones?

These critters have two eyes, so they all go inside the circle.
Two eyes
But this spider has 8 eyes, so it goes outside the circle.

We can draw a circle around all of the birds.
Two eyes
Birds
I see. Since **every** bird has two eyes...
...the circle for birds goes **inside** the two-eyes circle...
That's right.
Where should we put this critter in our diagram?
7 HP
Length: 12' Weight: 2200 lbs Tail:
Flippers: 4 Eyes: 2
Speed:
Stamina:
Strength:
Intelligence:
Special Ability: Blubber Bash
Where?

It looks like Captain Kraken!

Two eyes

Birds

It's not a bird, so it goes ***outside*** the bird circle.

But it has two eyes, so it goes ***inside*** the circle for critters with two eyes.

Great! Let's make another diagram.

We'll look at birds that fly...

...and birds that swim.

Here's the circle for birds that fly.

How should we draw the circle for birds that swim?

Birds that fly

How?

Some birds fly but don't swim... like this owl.

Some birds fly *and* swim... like this duck

And a few birds swim but don't fly... like this penguin.

The penguin goes outside the circle, but the duck and the owl both fly.

Birds that fly

Then, we can draw the circle around the swimmers like this!

Birds that fly

Birds that swim

Great!

Where does the ostrich go?

Where?

Since the ostrich doesn't fly or swim, it goes outside both circles.

The part inside both circles is for birds that can fly ***and*** swim.

Great! Do any of you have any favorite Kooky critters?

This one is my favorite.

Whoa!

That's the strangest looking critter so far!

I think this one looks cool!