This is a transcript of the video “Australian Animal Adaptations ~ STEAM Education from Queensland.”
While you are watching the video, you can use this transcript for your better understanding of the contents.

Introduction by Kevin (the navigator)

00:08

Hello, everyone! I’m Kevin and I’m the navigator for today’s session. I usually work at TGG.
Today’s theme is about “Animal Adaptations.”
Many different animals live on the earth. There are unique animals in Australia. Kangaroos and koalas are very well known among them. In today’s session, various animals will be introduced. Let’s think together about what characteristics each animal has and how they adapt to their environment.
The session also includes interesting experiments on animal adaptations. I’m looking forward to seeing what kind of experiments they are going to do. Please look at the session, and guess the results of the experiments.
Animals coexist with a variety of other animals while adapting to their environment. Let’s think about the relationship between animal adaptations and coexistence together as we watch the session.

Before starting the session, I will introduce some words used in this session to help you warm up.

tendon, you try
tendon
Tendons join muscles to bones.

mammal, you try
mammal
Sharks are a type of fish, but whales are mammals.

predator, you try
predator
Chicks of this bird are likely to be attacked by predators.

OK. Now you’re ready!
Let’s experience the seminar class in Queensland together!

Join the classroom in Queensland

02:50

Good morning, everyone.

As you all know, my name is Mr. McGrath.

Welcome to our class today.

Today we're going to be doing some science experiments.

Okay so what we're going to be doing is we're going to be working in teams, in groups.

You're in desks together in groups of three.

So we're going to be working as a team.

It's really important that you work together and discuss the things that we're going to be presenting today.

We're working on animal adaptations.

So I'll be looking for you to work together, talk amongst yourselves, make sure you ask lots of questions of one another.

If you have any questions for me, ask me questions and I'll try and help you out with those answers.

Are we all good to go?

Yes.

Okay, let's go.

So, in our class this morning we're doing animal adaptations.

And we're also going to group animals by special features.

Okay, so special features is the main theme of what we're looking at today.

So make sure you're thinking about that when we're looking at the animals that I'm going to show you.

So I'm going to show you some animals.

I want you to tell me what you know about the animals that I show you.

And I want you to tell me what country they're from.

What do you think?

Sounds cool.

Yeah okay, let's go with the first one.

So here is our first animal.

Who can tell me what it is?

Maya.

An antelope?

An antelope?

Is it a type of antelope?

Does it have another name?

A springbok?

A springbok.

You're right.

Can you tell me where it's from?

South Africa, called Africa?

I think you're right, it's definitely not Australian.

That's right.

Okay, so let's have a look at our next one.

Jasmine.

It's a velociraptor.

A velociraptor.

Well, you know it is actually considered a dinosaur animal.

But it's not a velociraptor.

Linnea?

A cassowary.

A cassowary is right.

Can you tell me where it comes from?

Australia.

Australia, you are right, it definitely does.

All right, let's look at our next one.

Who can tell me what this one is?

Josh.

I'm pretty sure it's a black bear.

A black bear, I think you would be right.

Where do you think it comes from?

I think it's probably from America, somewhere.

Any particular part of America?

North America.

North America, I think you are right.

So, it's definitely not Australian.

Okay, what about this one.

Jai.

It's a platypus.

A platypus?

Can you tell me a little bit more about it?

They're from Australia.

They're from Australia, yes.

And that's all.

Okay, let's go on to our next one then.

What about this one, Jasmine?

Is it an opossum?

It does look like an opossum, doesn't it?

Just because of the big eyes.

Yes, really big eyes.

Can get can you get someone to help you and your team here?

What type of animal is he though?

Can anyone remember?

Is he a lemur?

A lemur, you're right.

Is he Australian?

No.

No, no.

Can you actually tell me where he's from?

Isn't he in like Brazil, like the Amazon rain forest?

Very close.

Madagascar, very good, very good.

That's very good.

Okay, let's keep going.

What about this one, Matthew?

It's a koala.

It's a koala.

Tommy, do you know where it's from?

Yes, Australia.

Australia, can you tell me anything more about it that you know about it?

Um, it's very sleepy because of the toxins, or whatever it is in the eucalyptic leaves.

Yeah, very good, that's very good.

Okay, let's have a look at our next one.

We've got three more to go.

Can anyone tell me this one?

Maya?

A squirrel.

Yes, I think you're right.

And where does it come from?

I think America?

America, yeah.

So it's definitely not Australian.

You're right, very good definitely.

It actually comes from Europe as well.

So North America and Europe, the cold climates.

And next one, Josh.

Well, I'm pretty sure that's the cockatoo.

I think you're right, yes.

And it's definitely Australian because I see them a lot at my place so.

Do you really?

Yeah.

What, they just fly around?

They're very loud.

And they fly around?

Ah, very cool, very cool.

Here's our last one.

Jasmine?

A kangaroo.

A kangaroo.

Now tell me, is it Australian?

Hmm, I don't know, it might be.

It might be. It might be.

Do you think because it appears on our coat of arms, it might be Australian?

Maybe.

Possibly, very good.

Excellent.

Okay, so you have identified which animals they are Australians and which ones are not.

Okay, that's very good.

So today we're looking at adaptations.

So what is an adaptation?

An adaptation is like a superpower, like a superhero that has a cape or has a special power in them that enables them to do things that other people can't do.

So that's what we're looking at today with our kangaroo.

What special features do kangaroos have that make them different to other animals?

Matthew?

Their strong tail.

A very strong tail.

What does that help them do?

They're able to stand up on their tail to be able to fight.

Yes, does it help them to do anything else?

Balance.

Yes, balance.

It helps them to balance.

Let's have a look at some other things.

What else does it have?

Maya?

Sharp teeth.

Sharp teeth, what does the sharp teeth enable it to do?

Eat things easier.

Yes, they're able to eat things easier.

We've got one more there.

Can someone tell me?

Jai?

Um, they have strong tendons.

And what do the tendons in their legs enable them to do?

Jump and hop around.

Jump and hop around.

Fantastic.

So we've looked at some of those adaptations that make kangaroos a special animal.

Okay, so what we're going to do next is we're going to do an experiment with you.

So we're going to put some experiment materials out on your desks, and we're going to do an experiment about different types of bird beaks.

Are you ready to go?

Yes.

Okay, let's do it.

The experiments on bird beaks

09:09

Do you understand what adaptations are? Here, we are going to watch experiments on bird beaks. Let's take a look at them, and guess what the results will be.

So our experiment today is on bird beaks.

We're going to look at different sorts of bird beaks and see which one is the most effective at picking things up.

Okay, now we don't have beaks to choose.

So you've been given three different things to represent beaks.

You have a skewer is one of them.

You have a spoon is your next one.

And you have a peg, which is your next one.

With this experiment, you will have 15 seconds to choose as many items as you can off your plate.

Put them on the table and we will count them up at the end.

Are we good to go?

Yes.

Okay, let's good to go.

Pick up your implements.

Empty your clear straws onto your plate.

And do you have your implements?

I will time you with my watch.

So are you ready to start your first experiment?

Here we go.

You're going to have 15 seconds.

We're counting down, three, two, one, go.

See how many you can get in the 15 seconds.

We're five seconds in.

Now five seconds in.

Some of you are going better than others, I can see.

We're 10 seconds in.

Four, three, two, one.

Stop.

Okay, now collect all that you have taken out of the plate and we're going to do a count.

And I'm going to ask one person from each desk to write their score in the form that's on your desk.

So make the count, and then we'll compare to see how you went.

So we're writing in the skewer.

You're writing in the column for the clear straws.

The row, sorry, not the column, the row.

Just our number, just write a number is fine.

And then we'll compare and see how each desk went.

On this table which had the best result.

Jai.

The skewer had eight.

The skewer had eight.

Eight.

Okay, very good.

This table over here, Maya.

Which one had the best?

We had six for the skewer.

Six for the skewer.

Again, Hamish, on your desk which was the best one?

We had seven for peg.

Peg, well that's interesting.

That's a different that did the best on that table.

Very good.

Our next stage of the experiment is to choose the rubber bands.

So what I'll get you to do is to move the clear straws back into their bag and tip the rubber bands onto your plates.

If you want to, you can change your beaks around and try with a different beak.

That might be good fun to see how you go with the different material.

Are you ready to go?

Ethan.

Same rules and we have to pick up one?

Same rules, yes, you can only pick up one at a time, yes.

No, you have to use the spoon and not the handle end so it'll make it a little bit more difficult.

Alyssa, you must use the spoon end.

Okay, are we ready?

I'll get my watch ready.

Now again, it's going to be 15 seconds.

Three, two, one, go.

Okay, we're a few seconds in.

Five seconds in, now we've got 10 seconds left.

Interesting to see how the different beaks are going.

Five seconds.

Three, two, one, stop.

All right, like last time, count up your score there, and then we'll find out how the different beaks went to compare them.

Now that you've finished the experiment.

We're going to go around table to table and find out what your scores are, okay.

Alyssa, how did your table go with their scores?

Can you tell me what you've got and which was the best one?

We had nine for the skewer.

Nine for the skewer, very good.

Linnea, how did you go at your desk?

We got six for the skewer.

Six for the skewer, very good.

Ethan, how did you go at your table?

We got 12 for the skewer.

12, 12 for the skewer, but all the skewer was best.

Yes?

Excellent, that's great.

We are now going to move into the final one which is by far the best one.

And this is the gummy bears.

Now remember, this is an experiment.

You are not eating the gummy bears.

Okay, so let's get our rubber bands back in the bag and then we'll put the gummy bears on the plate.

So this is our final part of the experiment and we're doing the gummy bears.

I think this is the best part actually.

So are you ready to go?

Yeah.

Have you got your beak?

Have you got your utensils, your beaks?

All right, so let's get that timer in four, three, two, one, go.

You're going really well, some of them are harder than others, I can see.

We're five seconds in.

Okay, we're counting down.

Four, three, two, one, stop.

Okay.

Do your count up now.

So what we're going to do is we'll go from table to table and find out what your tallies are for that experiment.

So, Josh, first table here.

What was your result?

So the skewer had the most, and we got 16 skewers.

16, wow that's a big score for that one.

Okay, let's move to our next table.

Matthew, what was your tally?

We got 11 for the skewer.

11 for the skewer, again okay.

Jasmine, what did you get?

We got 20 for the spoon.

20 for the spoon.

Wow, that's a different beak on that one.

That's interesting.

The final stage in the experiment is to do a tally.

So, what we're going to do is on your table, do a vertical tally of each beak type.

And then we'll see what your table's results are, and we'll compare them with the other tables.

And then we'll try and make a decision as to which is the most effective beak.

Off you go.

So now you have done your tallies for every beak type.

What I'm looking for you to do is to compare the different beaks and how they went in your groups.

So I want you to have a discussion in your groups, and then we'll ask some questions about which beak type was best and why do you think that beak type was best.

Which beak was best?

16:16

Here, the teacher asked an important question.
Which beak was best? Why do you think that type is best?
Let's think about the question together.

What was your opinion?
Let's go back to class and listen to the students' opinions.

So off you go.

Discuss with one another what you think at your table.

I reckon that the skewer was the best because it like, I think it was the best because, like, for all like the gummy bears I was able to stab them and get them off really quickly and get them quickly.

For the straws, whereas like the spoon struck again.

I could just fit this in the middle and just take it out.

It's very hard to scoop things up, especially when it's like things like the straw and rubber bands.

But for the gummy bears, it's able to scoop up.

What I want you to do next is tell me which beak do you think was the best beak, and why do you think that beak was the best beak.

So I'll come around to each table and I'll ask you to tell me why.

Alyssa, can you tell me which beak was the best and why do you think that was the best one?

For our group, the skewer was the best beak with 33.

And it was probably the best because it's like adapted to be able to pick up all different types of foods or like whatever it would need to pick up.

Very good answer.

That is a good answer.

Okay, let's move to the next desk.

Who can tell me what was your best beak here on your table?

Nyan.

The skewer with 23, probably because the skewer has like a pointy end and it can like stick to anything it needs to, and it's thin so it can pick up anything, like going through a circle in a rubber band.

Excellent very good answer.

Ethan, which was the best one for your table?

Um, skewer with 34.

Yeah, and the reason why you think it might have been?

It was the most versatile with adapting to the different objects.

Most versatile, very good answer.

What I'd like you to do now is, I'd like you to discuss in your table groups, why do you think all of these beaks, all of these birds with these different types of beaks could live together in one environment or may they not be able to live together.

And if they can't, why do you think so?

Can birds with different beaks coexist?

18:51

Here, the teacher asked an important question.
Why do you think all of these birds with these different types of beaks could live together in one environment? Or might they not be able to live together, and if you think they can't, why do you think so?
Let's think about the question together.

What was your opinion?
Let's go back to class and listen to the students' opinions.

So have a discussion in your groups and then we'll come back and talk to each group about what your observations are.

Okay, off you go.

I feel like if this was all the food, that if these types of food were the only food available, I feel like they wouldn't be able to live together.

So have we had enough time to come up with an answer now?

Yeah.

All right so we'll go around to each table and we'll get your answer as could all these birds live together in the same environment or not.

And tell me why you think so.

Let's do that, okay.

Uh, Josh, do you want to tell us what your group came up with?

So we think that like the birds probably wouldn't be able to coexist if this was all the food that was available, as the skewer bird would have eaten all of the food.

And the other birds like not being as able to get the food, um, probably wouldn't have been able to survive as well.

However, if they're like different types of food that the other birds were more specialized in, then they would be able to coexist.

Fantastic answer.

Fantastic.

Lanaya, what do you think about your group here?

We think that it all depends on how varying the food sources are because the beaks are very different.

And if it was all the same food source, then it would probably be hard for them to compete.

Very good.

Okay, so you think that the birds could live together because they could find different foods that would suit their beak type.

Yes.

Very, very good.

That's another good answer.

Jasmine, what do you think with your group?

Taking into account the bird type shown on the board, which corresponded with each of the utensils, the skewer was like a stork, and the spoon was like a dodo and the peg was a duck.

Yes.

So, because they have varying diets, and what they eat, the stork tends to eat things like fish which is why it has something that can like skewer stuff with.

Whereas the duck like can pick like stuff up and the dodo like eats berries or something like that that they can scoop up with its beak.

So therefore, I think they would be able to coexist just because of their varying diets.

Because they wouldn't be all competing for the same food.

Very good answers, all very good answers in fact.

Very good.

We are going to do one more experiment.

More so a comparison than an experiment about the different features of animals.

Australian animals.
What we're doing now in this task is I'm going to show you some animals here that you

have on your sheet in front of you.

And what I want you to do is to fill in the blanks with the various words from the word block at the bottom.

So what we'll do is I'll show you the animals.

You try and fit the words on the word block at the bottom and categorize the animals into where you think they belong.

All good with that?

Grouping Australian animals

22:41

Here, the teacher gave the students a task about grouping Australian animals. Let's consider together the answers to the blanks on the sheet.

Okay, so let's have a look at our animals today.

So we have a clown fish.

Yes, very good.

You're right.

Uh, crocodile.

Excellent, cassowary.

Very good.

Cockatoo.

Once again, dingo.

Yes.

Kangaroo, wombat.

Koala.

Platypus.

Echidna.

Okay, so we also have a sheet to help you out with this task.

And I'll put those on your desk for you.

And then I want you to start filling in your sheets.

So these sheets will help you with the information that you need to fill in your sheet.

So if you look at the table that you have, and look at the characteristics that will help you to sort out where the words belong in the various blocks.

Off you go.

If you have any questions, ask.

Make sure that you ask one another to compare and see how you go.

Okay students, you've had a fair bit of time there to get that sorted out.

Have you almost finished?

Almost.

The ones that you don't have we'll compare with what we've got on our slide up here.

And we'll see how you went.

So this is the sheet that you have had and you have been filling in.

So let's have a look and see how you went.

Okay, we'll compare your answers.

So here are our answers.

So have a look on your sheet, and I want you to compare your answers with what we have here.

And then we'll come around to the table and we'll see how you went.

Okay, so tick them off if you got them right, and then write them in the ones that you weren't sure about.

Make sure you got a big tick on the ones that you got right.

Yes, that's right.

You could have used that twice.

Okay, so before we finish off this last section, there's one thing here that I want to ask you about this, this section here.

Can anyone tell me anything about the difference between these two animals?

What is significant about these two animals?

The echidna and the platypus

25:19

Here, the teacher discussed the echidna and the platypus. Let's consider together the differences between them and other animals.

What was your opinion?
Let's go back to class and listen to the students' opinions.

Can anyone tell me?

Josh.

Could it be that they're marsupials?

Are they both marsupials?

Not quite.

Okay, anything else?

I'm thinking about another word.

Jasmine?

The only mammals in the world that lay eggs.

The only mammals in the world that lay eggs.

Very good, but we have a specific word for that.

And what do we call it?

I'll give you a start, it starts with mono.

Mono.

Mono, not quite sure?

Monotremes, and I think that Australia is the only place that has those, okay.

We have one last activity for you to do.

And that is, you are going to create your own unique animal.

So what I want you to think about when you start this task is, what are some of the attributes that we have spoken about?

And when you design your animal, think about some of the different attributes.

Some that you've seen on this sheet here.

Some that we've looked at from the previous slides.

And come up with a unique animal.

And specifically concentrate on the attributes that you want it to have.

So the attribute you might be looking at might be the type of teeth it has, as to whether it is a carnivore or a herbivore, a plant-eating animal.

The claws or the feet that it has.

It might be for grabbing things, or it might be for walking long distances.

Whether it has a tail or not, do you get the idea?

Yeah.

Okay, so we'll collect these, we'll give you your next set of resources, and we'll go from there.

Design your new animal

27:30

Here, the teacher had the students do an activity: design a new animal. Let's design your new animal together, thinking about the following questions.
What are its special features?
Why did you choose those features?
Where would it live?
Can you think of a name for your animal?

What kind of animal did you design?
Let's go back to class and hear about the animals that the students designed.

You guys are going to have a water animal.

Good, good, so what might it need as a water animal?

And remember, it doesn't have to be only a water animal.

You are designing your own animal, so it could be, it could be in the water and on land as well, so.

Remember, it's your creation.

I can see that most tables are finished now.

So what I'm going to do is ask you ask you to explain some of the features about your animal.

So what are some of its special features?

Why did you choose them? Where might it live?

What about these guys, can you tell me one thing about your animal here?

We thought what we would need for the desert, so like, it needs something to, because there's not much sources of food or water in the desert, needs something to store it.

So he gave it like a hump.

We also gave it large feet for the sand, so it didn't sink into the sand.

Sure.

And it's got a long tail for swatting away flies.

Excellent.

Yeah, and it also has eyes that can close, like it's got other, second lids on its eyes so that sand doesn't get into it.

Okay, what about these guys here?

Oh, tell me about this one.

It's a lizard that has two legs and a tail like a whale but shorter.

Yes, and why did you give it some of those features?

It's going on land and in water, so it has like a tail for the water and legs for land.

Fantastic, and finally our last table down here.

Okay, so.

[Applause]

We have destroyed the species.

It has a long, sharp beak and sharp teeth because it's a carnivore.

Yes.

It has forwards facing eyes.

It's predator, it has like a crest on its head to attract mates.

It has ears.

It has a hump in its back to store water.

It has a long thick strong tail.

It has webbed feet so it can swim.

It lays eggs.

It's fluffy, and it has wings, and it has a pouch.

And it has a pouch, well, that is a really interesting animal.

So that wraps up our lesson for today.

You guys have looked at adaptations of animals.

You've looked at their special features, and you've even had an opportunity to design your own animal.

So it looks like we've had a lot of fun today.

I'm glad we've been able to share this and the discussion that we've had.

It's been really interesting to hear what you've had to say and watch you as you've talked and discussed about these various issues.

So thanks very much.

I'm glad we had this opportunity today.

You've done really well.

Thank you.

Closing by Kevin (the navigator)

31:26

How was today's session?
Animals adapt to their environments to stay alive. Various characteristics of animals are believed to be adaptations to their environments. For example, the kangaroo's long tail enables it to maintain its balance while standing on two legs. In this posture, it can see across the tall grasslands.
There were also interesting experiments on the beaks of birds. Bird beaks have various shapes, depending on the needs of the bird. In the experiments, they divided the beaks into three types: skewer, spoon, and peg, and explored which type could take in more food. I was very surprised to learn such experiments are useful when thinking about the adaptations of animals.
The students worked together and enjoyed the experiments. In addition, they actively discussed what we could see from the results of the experiments. It was very impressive that the students explained the conclusions of each group's experiments in their own words.
At the end of the session, the students designed their own new animals. It was interesting, wasn't it? What kind of animals did you come up with?
The theme of today's session was animal adaptations, but we were also able to learn various things such as how to conduct research and what conclusions to draw from experiments. Please use what you got in today's session in your future studies. See you next time!