

Animal Architect Tour

Start: “Engineer’s Eyes” (~5 min)

Gather the students at the entrance.

Teacher hook: *“Today, you are nature’s engineers. Your job is to spot strong, stable, and balanced structures all around us – both animal and human-built!”*

Tell students that they will need these hand signals:



Fist = strong



Triangle with fingers = stable



Arms out like a tightrope = balanced

Activity: Have students look around and point out either a natural or man-made structure that they see. Have them tell you a few examples and then as a group, and using the hand signals above, have them decide which best fits the structure that they have chosen.

Stop 1-Bison (~8 min):

Wind your way around the Snow Leopard enclosure and take the pathway that is directly across from the Lions’ Event pavilion. This will lead you to the bison if you keep walking straight up.

Focus: Have students observe the bison. *What do they notice? (it’s large and its legs have to carry a good amount of weight). If you had to hold up two hand signals, which ones would best describe the bison? (Large animals need strong skeletons and stable legs to hold weight).* It’s OK if students have other answers as long as they can explain why they chose that answer.

Observation: Look at their wide stance and sturdy legs.

Activity: “Weight Test” – Ask students to partner up. One student stands with their feet together. The other student (LIGHTLY) tries to push them off-balance. Now the other student stands with their feet wider apart and knees a bit bent. Try to push them (LIGHTLY) off-balance. Which is stronger – standing feet together or standing with feet apart? Students can try both!

Connect to human-built: Can they think of any human-built structures that need wide bases to hold a big load? (bridges).

Stop 2-Mountain Goats (~7 min):

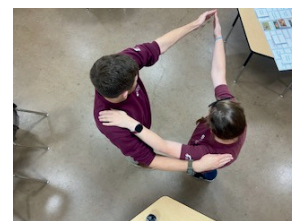
Head back down the same pathway you came up, but turn left after the trailer washroom until you get to the Mountain Goat enclosure.

Focus: Observe the Mountain Goats. *What do you think Mountain goats could do best?* Students choose a hand signal (Balance on rocky cliffs).

Activity: “Balance Challenge” – students try to stand on one foot, then with both feet. *Which feels more stable?* Now gather in pairs and form a triangle like the picture below. Now each partner stands on one foot while in this triangle shape and see if they were able to stabilize themselves better.

(Triangles = like mountain goat stance on cliffs so they don't fall off)

Connect to human-built: *What triangle structure have you seen, either in pictures, in movies/websites or in-person that is based on a triangle-shaped bottom?* (pyramids-they are very stable).



Stop 3 (Indoor/Outdoor)-Dingoes (~7 min):

Head to the Dingo Den (barn building, can be indoor or outdoor))

Focus: Movement and Structures in motion

Ask: “Using your hand signals, tell me what this animal needs to climb and to run fast?” (balance)

Activity 1: have students start running (a couple of steps only) from a standing position, then have them crouch, like a sprinter in hacks for a race, and then start running. *Which stance is more stable and may assist with speed?* (crouch-like a dingo ready to run)

Activity 2: Place rope on floor. Have students walk across (balancing without their arms out). Now have them try again, but this time with their arms out. *Which was easier? What part of a dingo helps it balance?* (tail). **Did you know that the dingoes are the only members of the dog family that can climb well thanks to very flexible wrists?**

Link to human-built: *What human-built things are made for speed?* (cars, planes, trains)

Stop 4 (Indoor)-Small Mammal House (~7 min):

Head over to the building that houses the monkeys (near concession)

Animals: Naked mole rats, meerkats, porcupines. Go look at each of these animal species and then gather the students either upstairs or downstairs. Ask: *what do they think the animals have in common?* (They live in groups and have extensive tunnel systems).

Focus: Group homes & tunnels. *Which hand signal would be the best to describe the tunnels?* (stable)

Activity: Students form a “human tunnel” by lining up close together facing another student and arms outstretched on the opposite student’s shoulders. Teacher gently pushes → ask, “Would it collapse if one person moved?” Try it!

Connect to human-built: *Can they think of human-built structures that would mimic animal tunnels?* (car tunnels, subway systems underground, mines)

Stop 5 (Indoor)-Discovery Centre (~7 min):

This is the building with reptiles, amphibians and fish (near entrance)

Animals: snakes, lizards

Focus: Special body “structures.” Have students look at the three types of animals above. Do they notice anything about these animal bodies that makes them strong, stable &/or balanced?

- Name an animal that has a strong structure on their body that makes them strong (turtle/tortoise, armadillo, clams, etc)
- Snake bodies: flat and all surface of their body touches the ground making them extremely stable
- Lizard legs are short and low to the ground: lowers their centre of gravity making balance a lot easier (not to mention that they have four legs touching ground)

Activity: Which makes you more stable standing up like us or down on all fours with hands and feet touching ground. Have students try it!

Link to human-built: *If you could build a house with a flat roof or a domed roof, which would you choose to be the strongest? Why?* (a curved surface of a dome directs all applied pressure smoothly down its supporting base or walls. A flat roof would allow snow to accumulate adding weight unevenly to the structure). Allow kids to think about it and see what they come up with.

Wrap-Up-Discovery Centre (~3 min):

Quick group reflection (as long as students have a good reason for their answer, there could be multiple responses):

- “Which animal showed the strongest structure?”
- “Which animal was the best at balancing?”
- “Which animal’s home was the most stable?”

Teacher close: *“Just like people, animals need strong, stable, and balanced structures to survive!”*

**AFTER COMPLETING YOUR ACTIVITY YOU MAY FREELY EXPLORE THE ZOO,
OR IF YOU HAVE A BOOKED PROGRAM, PLEASE RETURN TO THE RED
BENCHES OUTSIDE THE ZOO ENTRANCE FOR YOUR PROGRAM TIME.**

*****PLEASE RETURN ALL BORROWED ACTIVITY EQUIPMENT TO BLACK BIN
LOCATED OUTSIDE THE DOOR USED FOR YOUR EDUCATION PROGRAM*****



Animal Architects Map

Possible Starting Locations

C= Zoo Entrance

D= Affinity Learning Centre/Discovery
Centre

