



START WITH INSPIRATION FROM NATURE

Sensing electricity

1 Sharks sense electric fields using gel-filled pores in their skin.



2 **STRATEGY:** electrical receptors
FUNCTION: sense the environment

3 What is a **human challenge** that could be solved by sensing electric fields?

Need a hint? Look for:



[The Navigation Challenge](#)

Or, search for strategies on the AskNature kiosk.



START WITH INSPIRATION FROM NATURE

Locating with sound

1

The oilbird makes clicking sounds that bounce back and help it detect objects in its way. Using soundwaves to locate objects is called echolocation.



2

STRATEGY: echolocation

FUNCTION: navigate, send sound signals

3

What is a **human challenge** that could be solved with echolocation?

Need a hint? Look for:



[The Navigation Challenge](#)

Or, search for strategies on the AskNature kiosk.



START WITH INSPIRATION FROM NATURE

Taking turns

1

Meerkats decide where to look for food by following the first individual that goes in a certain direction. They take turns following different leaders each day.



2

STRATEGY: taking turns
FUNCTION: make decisions

3

What is a **human challenge** that could be solved by taking turns?

Need a hint? Look for:



[The Library Challenge](#)



[The Education Challenge](#)

Or, search for strategies on the AskNature kiosk.



START WITH INSPIRATION FROM NATURE

Voting

1

African wild dogs decide whether the group will stay where they are or move on by making a sound a little like a sneeze to cast their vote.



2

STRATEGY: voting
FUNCTION: make decisions

3

What is a **human challenge** that could be solved by voting?

Need a hint? Look for:



[The Library Challenge](#)



[The Education Challenge](#)

Or, search for strategies on the AskNature kiosk.

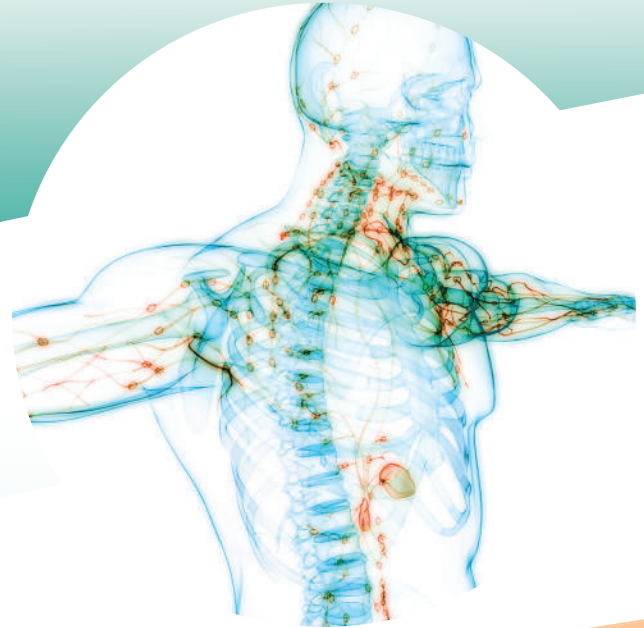


START WITH INSPIRATION FROM NATURE

Directing flow

1

Vessels in mammals use flaps and differences in pressure to direct the flow of lymph fluid.



2

STRATEGY: one way flaps, pressure differences
FUNCTION: distribute resources

3

What is a **human challenge** that could be solved by directing flow?

Need a hint? Look for:



[The Garden Watering Challenge](#)

Or, search for strategies on the AskNature kiosk.



START WITH INSPIRATION FROM NATURE

Using valves

1

The hissing cockroach creates one-way airflow using valves and active pumping to move air in and out of its body.



2

STRATEGY: valves that open and close
FUNCTION: distribute resources

3

What is a **human challenge** that could be solved by using valves that open and close?

Need a hint? Look for:



[The Garden Watering Challenge](#)

Or, search for strategies on the AskNature kiosk.



START WITH INSPIRATION FROM NATURE

Channeling water

1

Young leaves of bamboo channel excess water using a combination of hydrophobic (“water fearing”) and hydrophilic (“water loving”) surfaces.



2

STRATEGY: central groove; hydrophobic and hydrophilic surfaces

FUNCTION: distribute resources

3

What is a **human challenge** that could be solved with grooved and hydrophobic surfaces?

Need a hint? Look for:



[The Garden Watering Challenge](#)

Or, search for strategies on the AskNature kiosk.



START WITH INSPIRATION FROM NATURE

Social networking

1

Social networking in hermit crabs help them find new homes efficiently by changing shells at the same time.



2

STRATEGY: social networking
FUNCTION: manage resources

3

What is a **human challenge** that could be solved through social networking?

Need a hint? Look for:



[The Library Challenge](#)



[The Education Challenge](#)

Or, search for strategies on the AskNature kiosk.



START WITH INSPIRATION FROM NATURE

Absorbing heat

1

Hairs on the polar bear prevent heat loss by absorbing heat in the form of infrared radiation.



2

STRATEGY: absorbing instead of transmitting heat
FUNCTION: manage temperature

3

What is a **human challenge** that could be solved with heat absorbing hairs?

Need a hint? Look for:



[The Astronaut Challenge](#)



[The Heating Costs Challenge](#)

Or, search for strategies on the AskNature kiosk.



START WITH INSPIRATION FROM NATURE

Trapping heat

1

The bigger barbules and higher number of microscopic prongs on the down of eider ducks trap more heat than other feathers.



2

STRATEGY: fluffy layers that trap air
FUNCTION: manage temperature

3

What is a **human challenge** that could be solved with layers that trap warm air?

Need a hint? Look for:



[The Astronaut Challenge](#)



[The Heating Costs Challenge](#)

Or, search for strategies on the AskNature kiosk.



START WITH A HUMAN CHALLENGE

Education Challenge



1

Not everybody in your city is getting the same quality of education. Design a plan for making sure everyone gets a good education.

2

CHALLENGE: Make a fair education plan.

FUNCTION: Manage resources, organize groups, make decisions, or any other function you can think of.

3

What strategies from nature could you mimic to help solve this challenge?

Need a hint? Look for:



[Taking turns](#)



[Social networking](#)



[Voting](#)

Or, search for strategies on the AskNature kiosk.



START WITH A HUMAN CHALLENGE

Astronaut Challenge



1

Outer space is incredibly cold; how would you keep an astronaut safe and warm while they explore?

2

CHALLENGE: Keep an astronaut safe and warm in space.
FUNCTION: Manage temperature, protect, or any other function you can think of.

3

What strategies from nature could you mimic to help solve this challenge?

Need a hint? Look for:



[Trapping heat](#)



[Absorbing heat](#)

Or, search for strategies on the AskNature kiosk.



START WITH A HUMAN CHALLENGE

Heating Costs Challenge



1

Your family has moved into an old house and the heating bills are too high. How do you reduce heating costs?

2

CHALLENGE: Reduce heating costs.

FUNCTION: Insulate, manage temperature, or any other function you can think of.

3

What strategies from nature could you mimic to help solve this challenge?

Need a hint? Look for:



[Trapping heat](#)



[Absorbing heat](#)

Or, search for strategies on the AskNature kiosk.



START WITH A HUMAN CHALLENGE

Garden Watering Challenge



1 Your rain barrel collects plenty of water; how do you get the water to the plants that need it?

2 **CHALLENGE:** Design a watering system for your garden.
FUNCTION: Distribute resources, organize movement, conduct water, or any other function you can think of.

3 What strategies from nature could you mimic to help solve this challenge?

Need a hint? Look for:



[Channeling water](#)



[Using Valves](#)



[Directing flow](#)

Or, search for strategies on the AskNature kiosk.



START WITH A HUMAN CHALLENGE

Library Challenge



1

When a new book arrives at the library, many people want to check it out. How do you decide who gets the book first?

2

CHALLENGE: Design a way to decide who gets books from the library first.

FUNCTION: Manage resources, make decisions, choose order, or any other function you can think of.

3

What strategies from nature could you mimic to help solve this challenge?

Need a hint? Look for:



[Taking turns](#)



[Social networking](#)



[Voting](#)

Or, search for strategies on the AskNature kiosk.



START WITH A HUMAN CHALLENGE

Navigation Challenge

1

People who can't see well sometimes struggle to avoid obstacles. How could you help them get around safely?



2

CHALLENGE: Design a new way for low vision people to learn about their surroundings.

FUNCTION: Navigate, sense the environment, or any other function you can think of.

3

What strategies from nature could you mimic to help solve this challenge?

Need a hint? Look for:



[Sensing electricity](#)



[Locating with sound](#)

Or, search for strategies on the AskNature kiosk.