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Designing from Nature



SIX TO SIX MAGNET

Grade 3



Six to Six Magnet School
601 Pearl Harbor St.
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How do you think scientists came up with the idea for the design of an airplane?

Select an animal:

Alligator

Shark

Crab

Bat

Other: (choose another animal)

Go to the library or click on these websites and read to find out more information about the animal you chose.

Alligator

<https://kids.nationalgeographic.com/animals/american-alligator/#american-alligator-jaws.jpg>

Hammerhead Shark

<https://kids.nationalgeographic.com/animals/hammerhead-shark/#hammerhead-shark-swimming.jpg>

Bull Shark <https://kids.nationalgeographic.com/animals/bull-shark/#bull-shark-swimming-ocean-floor1.jpg>

Great White Shark

<https://kids.nationalgeographic.com/animals/great-white-shark/#great-white-shark-swimming-blue.jpg>

Sand Tiger Shark

<https://kids.nationalgeographic.com/animals/sand-tiger-shark/#sand-tiger-shark-close-teeth.jpg>

Crab <https://kids.nationalgeographic.com/animals/christmas-island-red-crab/#christmas-island-crab-closeup.jpg>

Vampire Bat

<https://kids.nationalgeographic.com/animals/vampire-bat/#yikes-vampirebat.png>

Tubed-Lipped Nectar Bat

<https://kids.nationalgeographic.com/animals/tube-lippednectarbat/#tube-lipped-nectar-bat.jpg>

About my animal:

What are my animal's features?	How do these features help the animal survive?
<i>Ex: A bat has wings.</i>	<i>Its wings help the bat to fly, but it also helps them to hold insects or fruit while eating.</i>

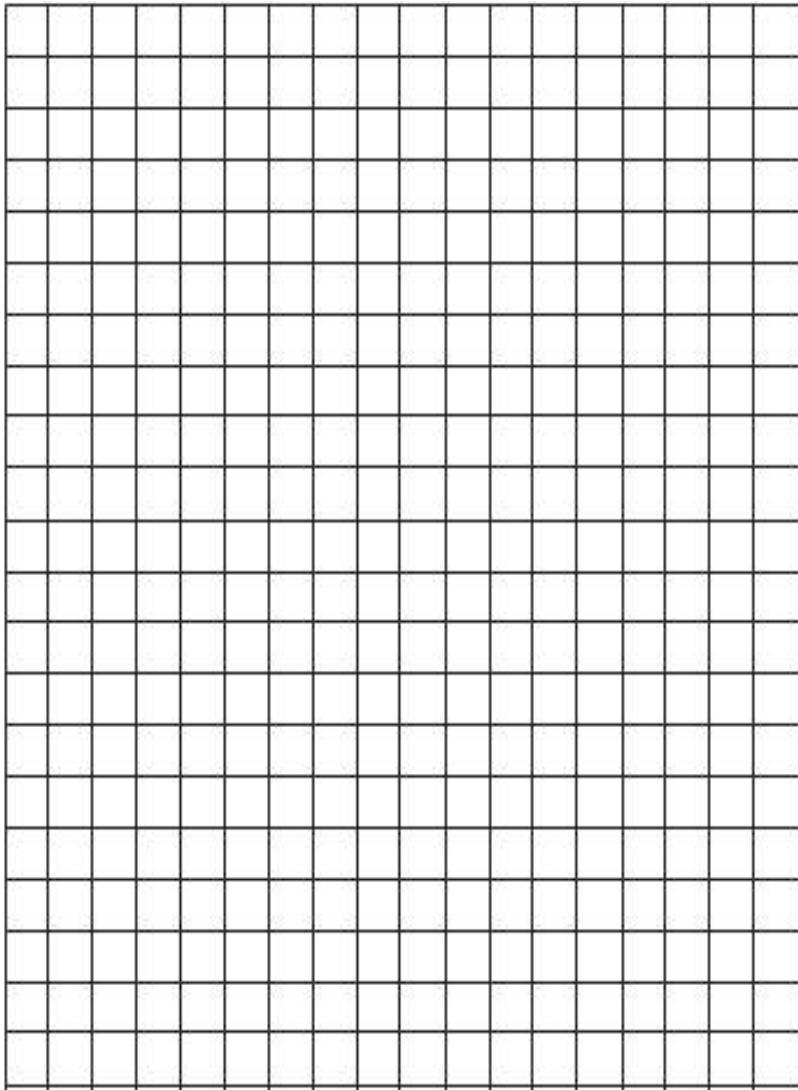
Engineers are scientists who design new devices or objects in order to solve problems.

Engineers often look at organisms in nature for ideas about how to design new inventions. For example, some robots built to explore the ocean are shaped like fish with fins that help them swim through the water. When trying to build a robot that can run fast, scientists copied the leg shape of a cheetah—the world’s fastest land animal. Suppose that you are an engineer who is designing a new type of robot. How might studying an animal help you to design it? Answer the questions below to plan how you could make a robot that has features similar to those of the animal in nature you chose.

Thinking about your animal’s features, what do you want your robot to be able to do?

What features of the animal allow it to have that ability? For example, does it have an unusual shape or special feet? _____

Draw a model of your robot. Use shapes like in the video to help you draw your robot. Be sure to label different parts of your sketch.



Read the following books:

Measuring Penny by Loreen Leedy

Millions to Measure by David M. Schwartz

Measure your robot's body parts. Circle the unit of measurement you used.

Head _____ in./cm./mm/other ____

Body _____ in./cm./mm/other ____

Arms _____ in./cm./mm/other ____

Legs _____ in./cm./mm/other ____

Read the following books:

Perimeter, Area, and Volume by David A. Adler

If you were a quadrilateral by Molly Blaisdell

Look for any quadrilaterals in your robot. Find its perimeter and area. Label the perimeter and area in your drawing.

Extension

Find everyday materials to build your robot.

Once you have built your robot, upload a picture of your robot and email to diasc@ces.k12.ct.us or kibbye@ces.k12.ct.us so we can share it with our school community.

How do you think this ability helps the animal to survive in the wild? _____

Explain how the animal's ability would be useful in your robot. _____



Watch:

How to Draw a Shark with Shapes

<https://www.youtube.com/watch?v=G6hV-xRV6xg>