Build it from Nature

Elinor is fascinated by the hook-and-loop fastener on Ari's new watch. How do the two ends stick together, she wonders? She invites Ari and Olive to investigate with her. They get their answer when they examine a bur seed stuck to Ari's shirt. They discover that the bur seed has little hooks that attach to the fibers of the shirt. A hook-and-loop fastener works the same way!

The VELCRO® brand hook-and-loop fastener is just one example of a human-made object whose invention was inspired by nature. Other examples are LED lights (inspired by the light mechanisms of fireflies); medical adhesive that is strong but gentle on the skin (inspired by the silk of spiders); and a special coating for ship hulls to keep water life from sticking to them (inspired by the anti-bacterial properties of shark skin).

What's Missing?

Use the pictures on the next page to get your child thinking about how nature inspires the human-made world. Three of the pictures are animals with features that influenced human designs. The other three pictures are human-designed objects that are missing a part that makes them work. Cut out the pictures. Put the animals in one pile and the partially completed pictures in another.

Look at the pictures with your child. Talk about the features (e.g., legs, beaks, wings) of the three animals. Discuss what is missing from the other three pictures. Ask your child, "Which animal has a feature that would help the (train, plane, fins) work?" Then have your child complete the pictures by laying each human-made object over the animal that influenced its design. For example lay the scuba diver over the frog so the frog's webbed feet become the diver's swim fins.

BULLET TRAIN

The design of the super-fast Japanese bullet train drew inspiration from the head of a kingfisher, a bird with a big head and a long, narrow beak. A Japanese engineer noticed that when a kingfisher dove into the water to catch a fish it made very little splash. The same design, he thought, could help the train move through air more efficiently. It worked! Modern bullet trains have a steel "beak."

AIRPLANE

The Wright brothers spent a lot of time observing how birds fly before they built the first plane that successfully flew a human in 1901. In particular, they noticed how birds rotate their wings to stabilize their flight. They applied this concept to the wings of their flyer. This led to the development of the aileron, a mechanism found on today's planes that control the roll of the plane.

SWIM FINS

The modern swim fin was invented in 1914 by Louis de Corlieu, a member of the French Navy. He was inspired by how the webbed feet of ducks and frogs propel them through the water.

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What's Missing?

Elinor Wonders Why

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