

Smithsonian

Selling More Snacks



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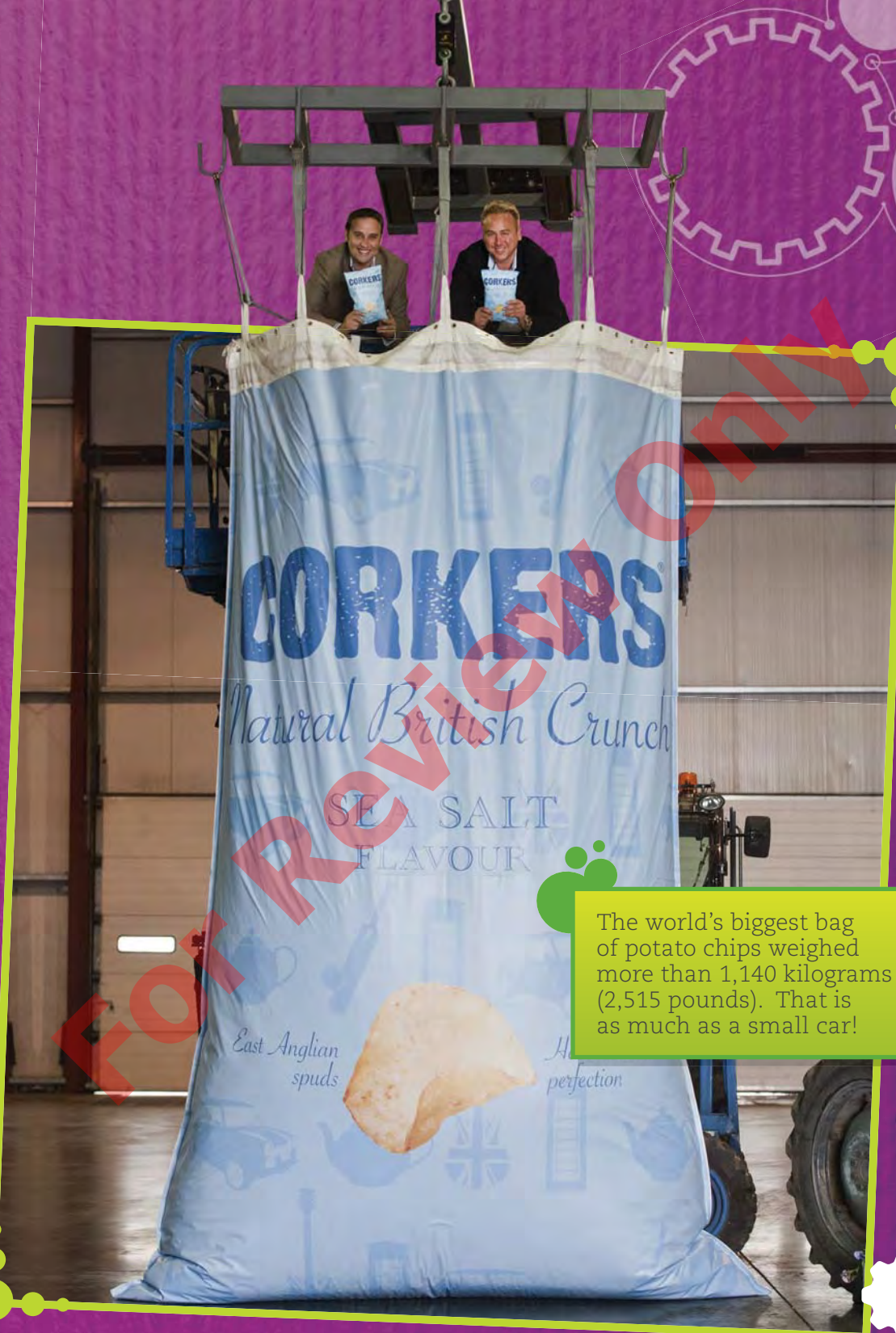
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Nation of Snackers

You come home from school and your stomach is rumbling. “Feed me!” it growls. So you stroll into the kitchen to find a snack. What do you usually reach for? Do you grab a granola bar? How about a bag of cheddar cheese crackers? Or maybe some fresh baby carrots? Whatever you choose, you have many options. That is because snacks are easier to come across than ever before.

Snacking has become a regular part of the day for many people. From popcorn and apples to yogurt and ice cream, take a trip to any grocery store and you will find all kinds of delicious treats in the aisles. These foods and more became popular in the 1950s **snack revolution**. Since then, **innovations** (ih-nuh-VAY-shunz) in food have made snacks much easier to munch on the go. And there are more choices than ever before.





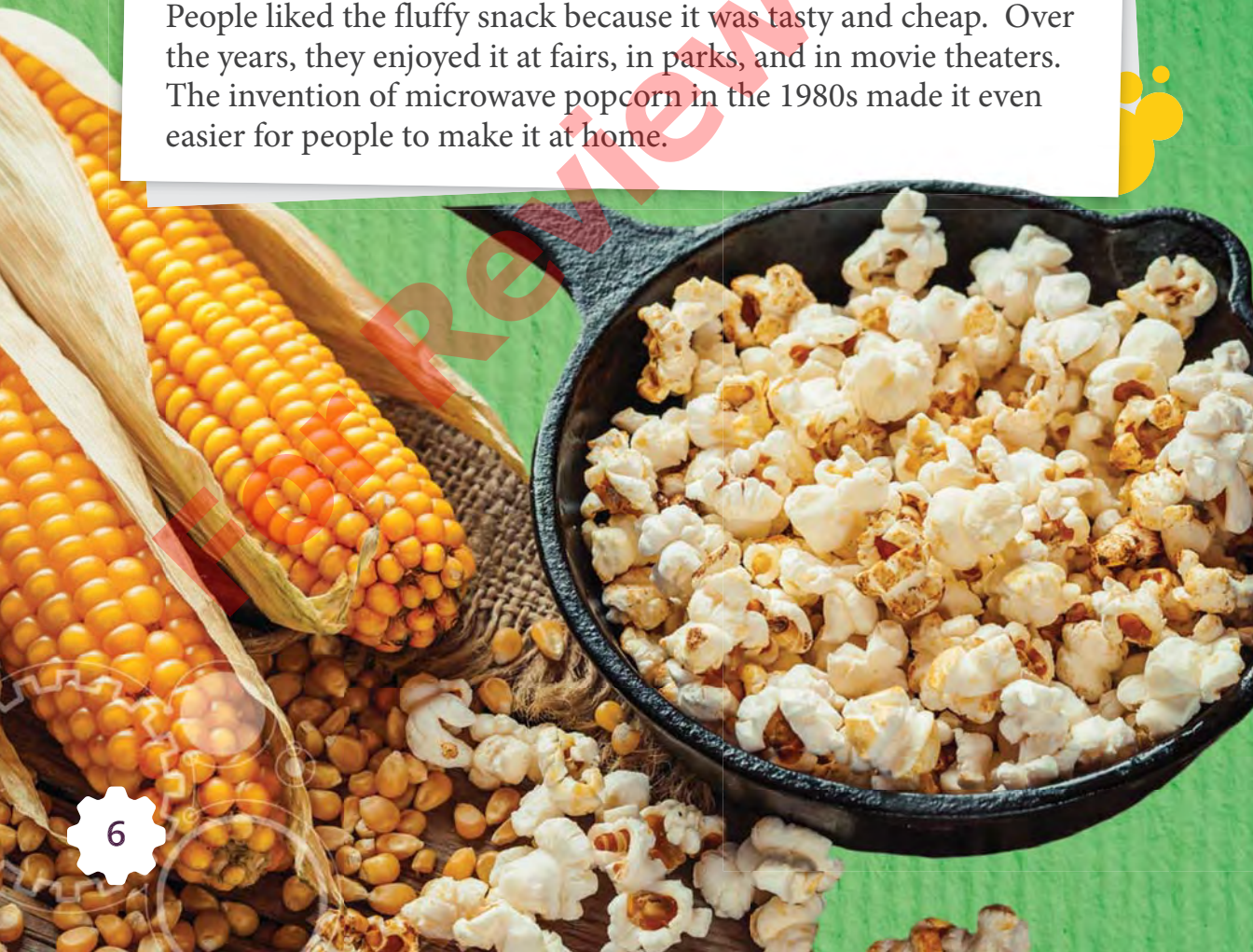
The world's biggest bag of potato chips weighed more than 1,140 kilograms (2,515 pounds). That is as much as a small car!

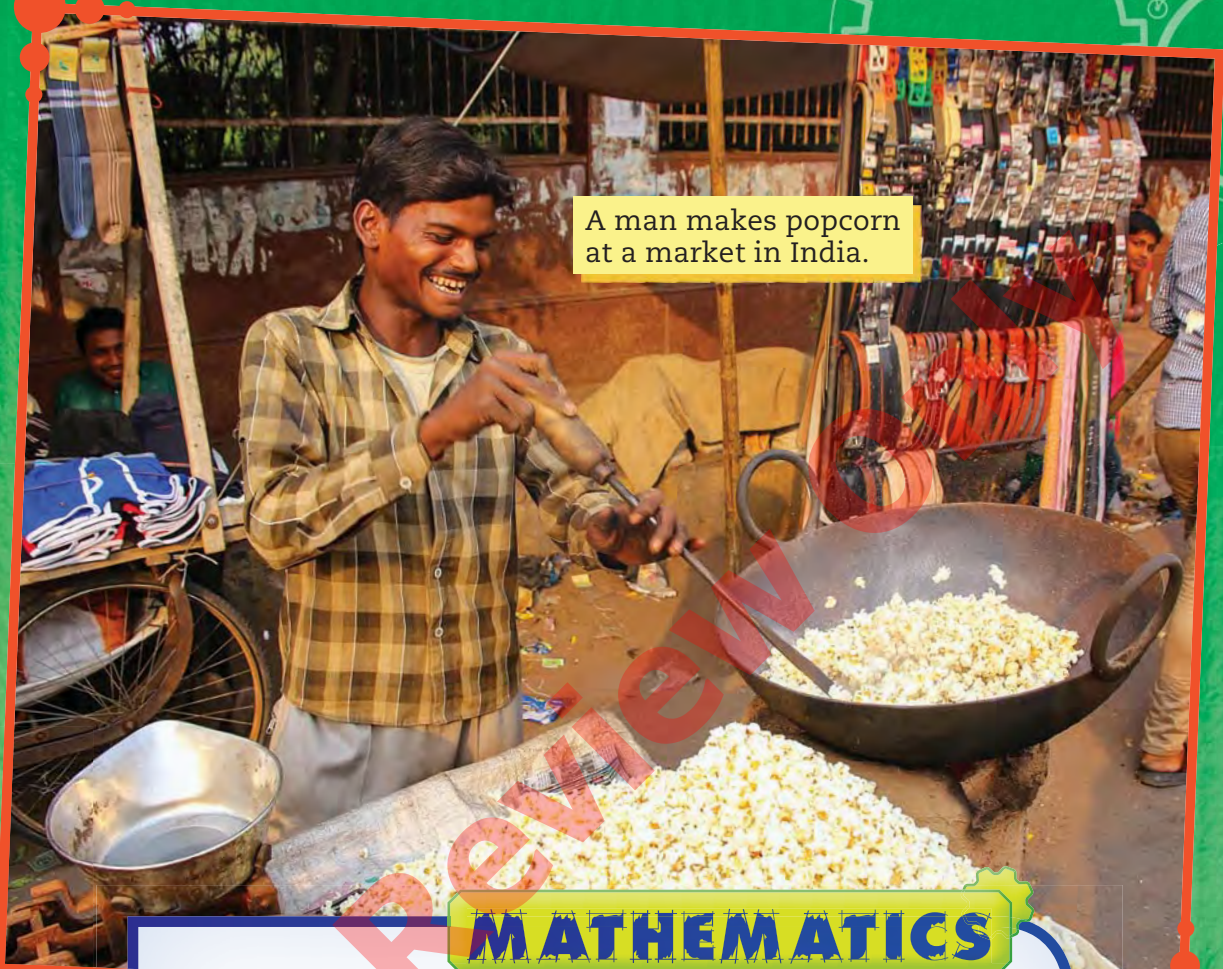
Snacking through the Years

Some snacks people eat today have been around for a long time. Popcorn and pretzels are two of the world's oldest snack foods. But which one came first? Historians aren't sure. Some say popcorn came first. The airy snack comes from a type of corn plant. It dates back thousands of years. One of the oldest popped corncobs was found in Peru, a country in South America. Back then people roasted the cobs over fire until the kernels popped.

What's Poppin'?

Popcorn got a popularity boost in the mid-1800s. That is when the planting of corn became widespread in the United States. People liked the fluffy snack because it was tasty and cheap. Over the years, they enjoyed it at fairs, in parks, and in movie theaters. The invention of microwave popcorn in the 1980s made it even easier for people to make it at home.





A man makes popcorn at a market in India.

MATHEMATICS

Pop Secret

Most of the world's corn that is used for popcorn is grown in the United States. But popcorn is enjoyed all over the world. Each kernel has a hard outer shell called a **hull**. There is a small drop of water inside each hull that is surrounded by **starch**. Most corn kernels pop when the temperature inside reaches $200^{\circ}\text{--}240^{\circ}$ Celsius ($400^{\circ}\text{--}460^{\circ}$ Fahrenheit). The water turns to steam. Pressure from the steam builds until the hull finally bursts and turns inside out.



One Twisted Snack

Pretzels have a long history, too. But no one knows for sure who made the first pretzel. One **legend** says Italian **monks** first made the soft snack about 1,500 years ago. The monks twisted dough to look like arms crossed in prayer. They used the baked goods to reward their students. Some people say the word *pretzel* comes from the Latin word *pretiola*. It means “little reward.”

Hard pretzels were first made in the United States in 1861. The history of this snack is filled with legends as well. Some people say that Julius Sturgis was making soft pretzels at his bakery in Pennsylvania. One batch of pretzels was left in the oven for too long and burned. Sturgis tried them anyway. He thought they were crisp and tasty. Other people say that hard pretzels were made on purpose because they would last a lot longer than soft pretzels. Either way, the hard pretzel was born!



A 15th century baker sells pretzels.

Baker Helen Hoff holds the world record for pretzel twisting. She can twist 57 pretzels in one minute!



ENGINEERING

Preparing Pretzels

Most pretzels are made by machines. First, about 50 kg (110 lb.) of dough is placed on a **conveyor belt**. Machines roll and cut the dough to the right thickness and length. Then, a “twister” machine shapes the dough. Machines drop the pretzels into liquid and then salt them. Finally, machines transfer the pretzels to ovens, then to be dried and packaged.



STEAM CHALLENGE

Define the Problem

A food scientist has asked you to help create a delicious snack for kids. Use what you have learned about snacks to make 170 grams (6 ounces) of a snack mix to use as a sample.



Constraints: Your sample snack mix must be under 300 calories. The snack mix must contain at least three different ingredients.



Criteria: The snack mix must be taste-tested and approved by at least five kids. (**Note:** Give your testers a list of ingredients to make sure they are not allergic to anything in your recipe.)





Research and Brainstorm

What should you consider when making a snack healthier? Will you focus on calories or taste first? How does your target customer change your recipe?



Design and Build

List your ingredients and their calorie counts. How much of each ingredient will you use to create your mix? Include how much of each ingredient is needed to create 170 g (6 oz.) of your recipe. Combine ingredients to create your snack.



Test and Improve

Ask your testers to judge your snack based on their five senses. Would they choose to eat your snack if it was in a store? Ask your testers to give feedback on what could be better. Modify your recipe and try again.



Reflect and Share

How can you improve your recipe? What would be the best way to package your snack?

