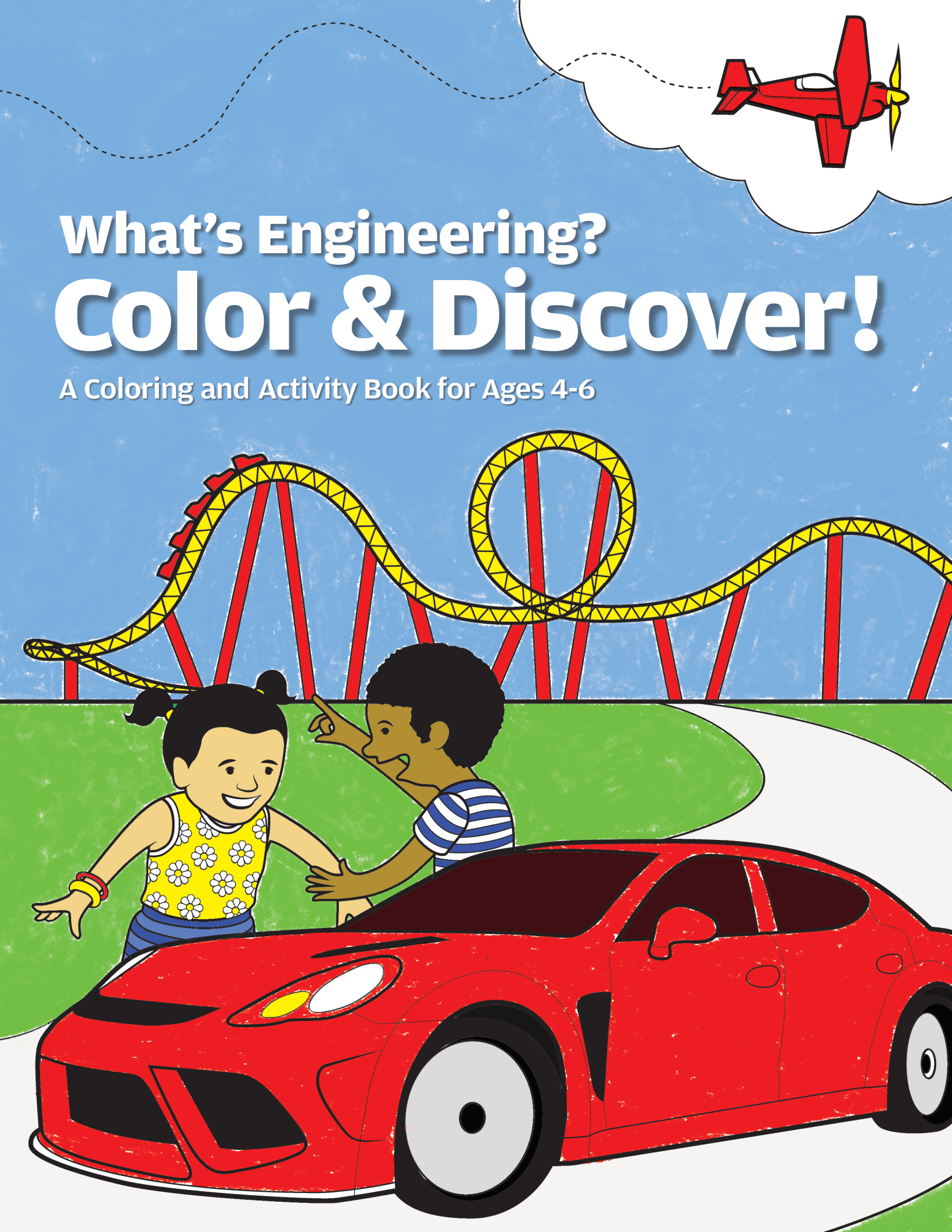
What's Engineering?
Color & Discover!

A Coloring and Activity Book for Ages 4-6



Start Engineering

Welcome to the wonderful world of engineering!

We created this coloring and activity book to help children see the world in a new way — as shaped and built by engineers — and to inspire their own engineering creations.

We are all surrounded by the work of engineers. But most kids (and many parents) have no idea what engineers do.

Engineers come up with the coolest phones, games, and gadgets. They design rockets, robots, and underwater vehicles. They find cleaner ways to produce energy and make life on our planet more sustainable. They also help doctors heal the sick and improve lives.

Coloring the pictures and doing the activities in this book will help children begin to see that life takes engineering. With this learning in mind, there's no telling what they might dream up themselves! We invite you to read this book with your child and share this journey together.

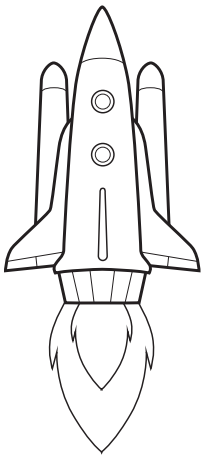
Happy engineering!

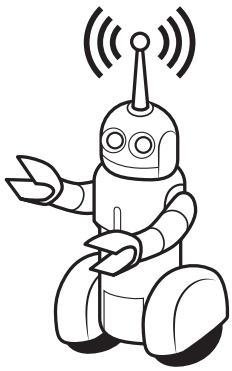
Robert Black
CEO, Start Engineering

P.S. Teach your child more about engineering with our elementary-school book, "Dream, Invent, Create: Engineer the World," available on our website, start-engineering.com. For more ideas on how to add a bit of engineering to your child's life, see page 19.

What is an ENGINEER?

An engineer creates cool things like rockets, robots, and roller coasters!





Turn the page to find out what ELSE engineers do!

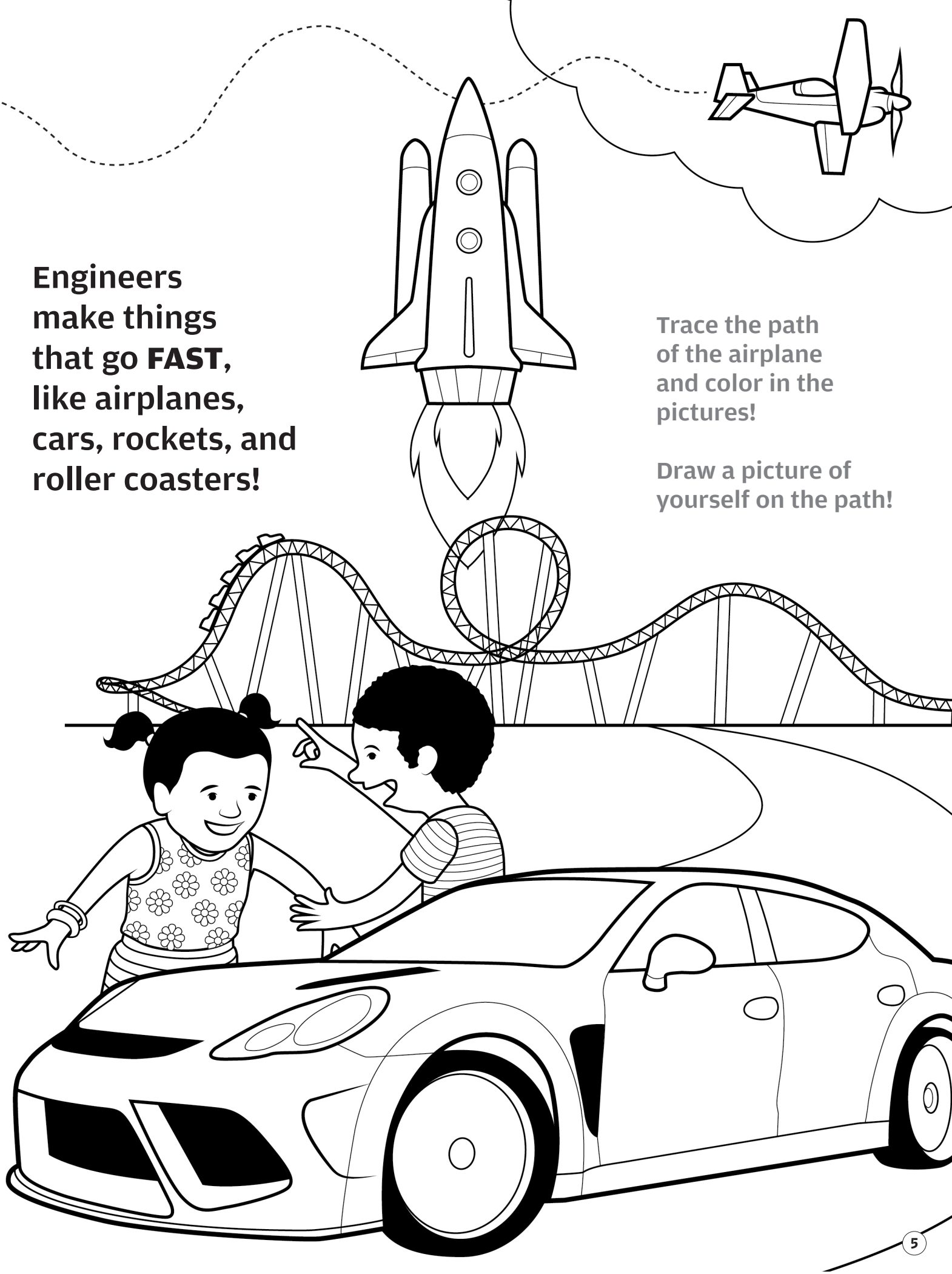
Color in the letters if you can!

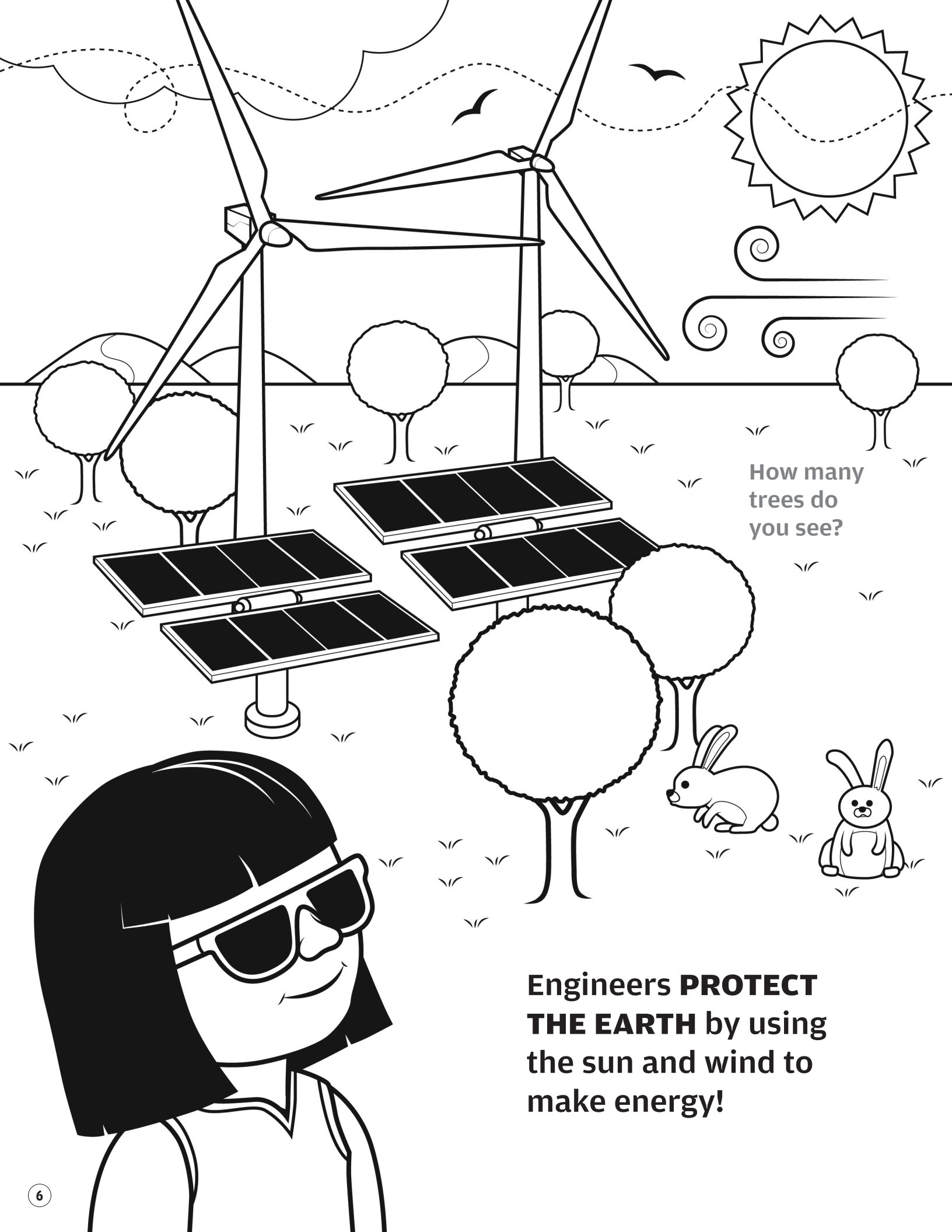

What do engineers do?
They create things that are **TALL** like skyscrapers and towers.

Engineers make things that go FAST, like airplanes, cars, rockets, and roller coasters!

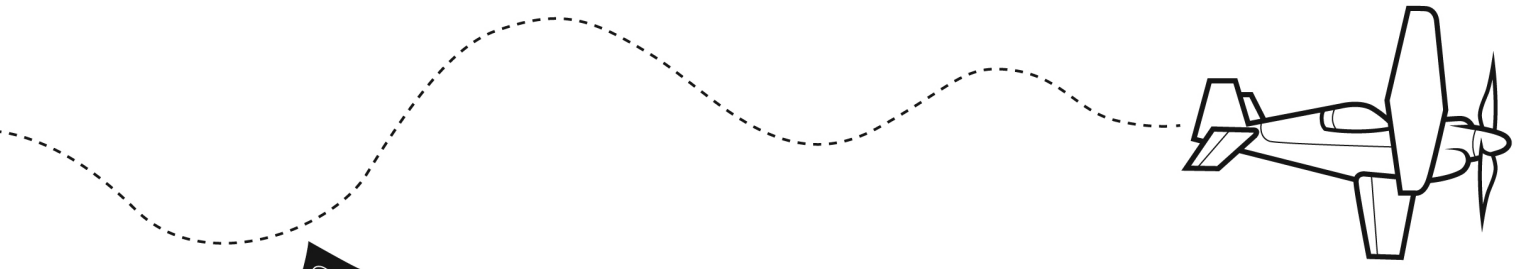
Trace the path of the airplane and color in the pictures!

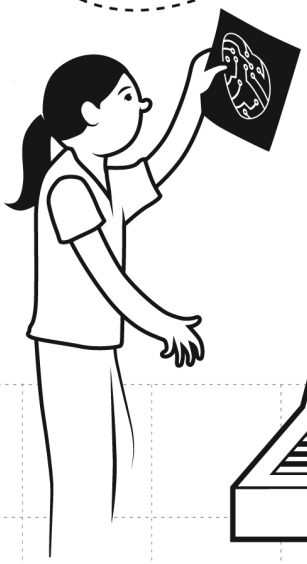
Draw a picture of yourself on the path!



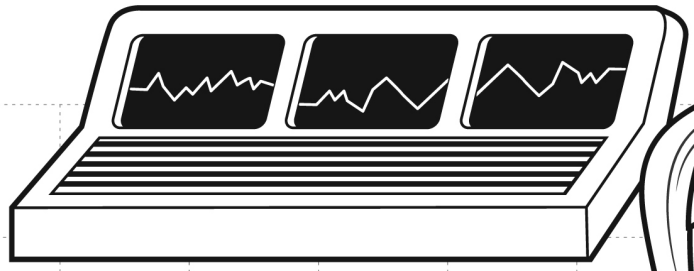


Engineers **PROTECT THE EARTH** by using the sun and wind to make energy!

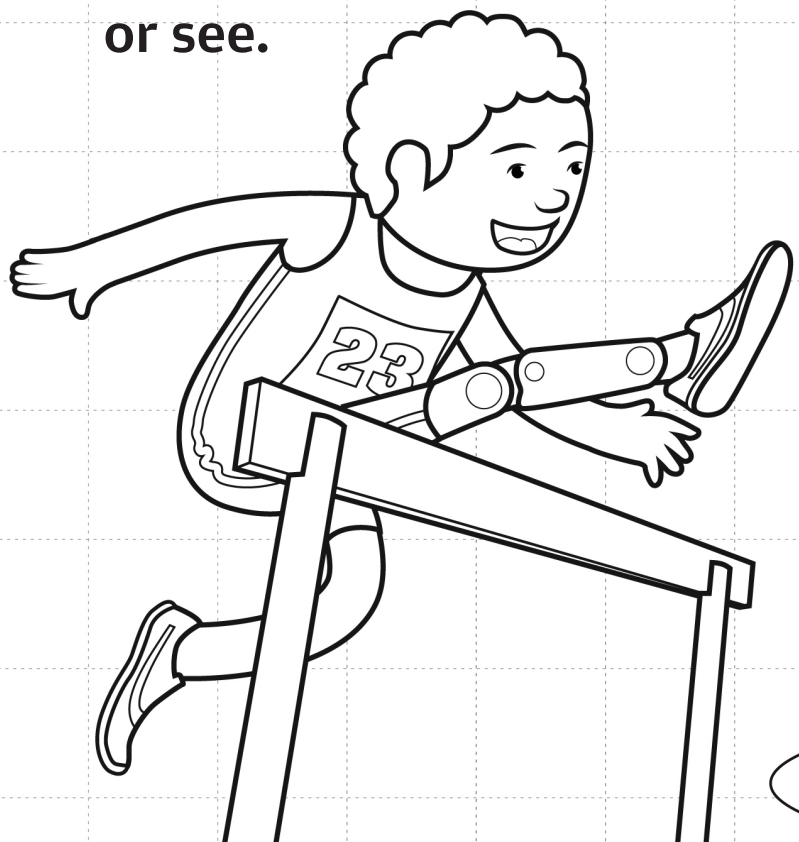




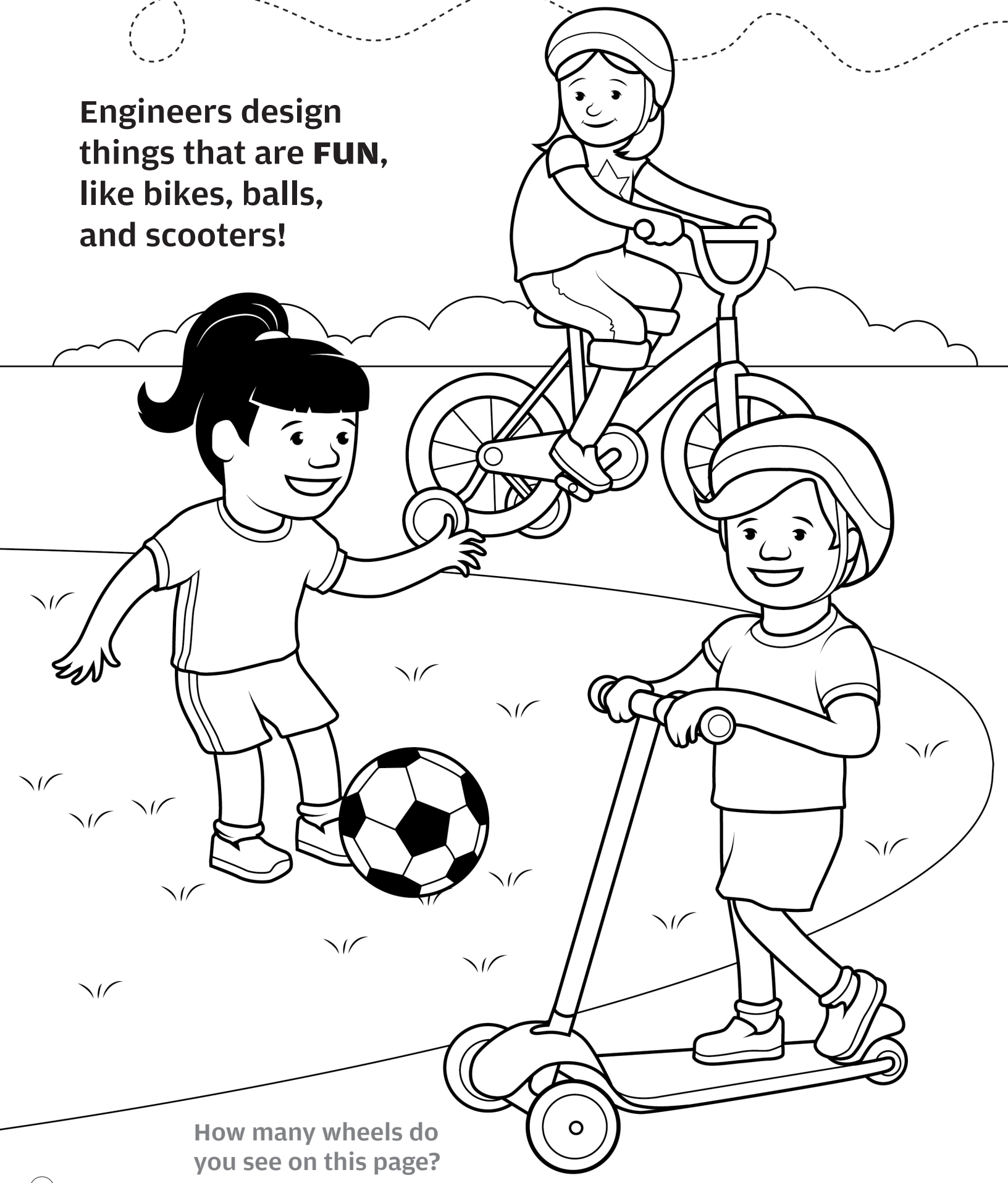
Engineers **HELP SAVE LIVES** by designing machines that doctors use to treat their patients.



They **HELP MAKE LIFE BETTER** for people who need special tools to run, walk, hear, or see.



Engineers design things that are **FUN**, like bikes, balls, and scooters!



How many wheels do you see on this page?

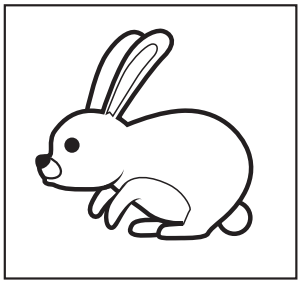
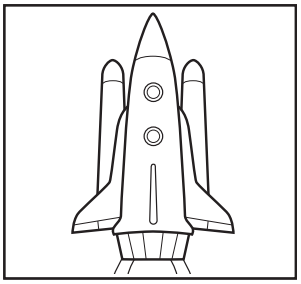
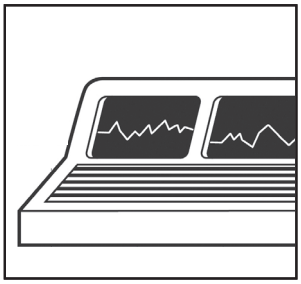
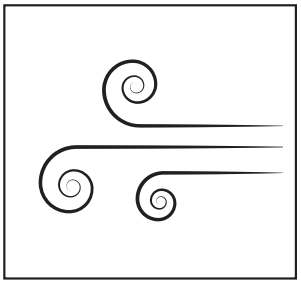
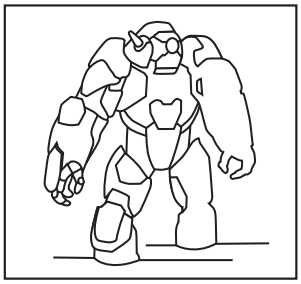
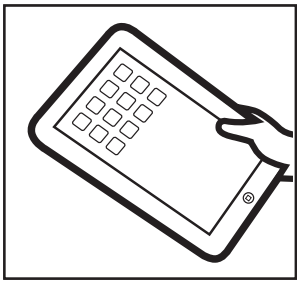
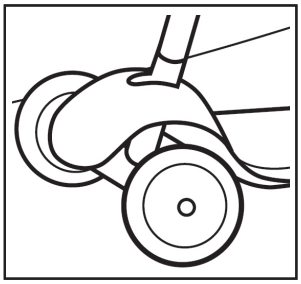
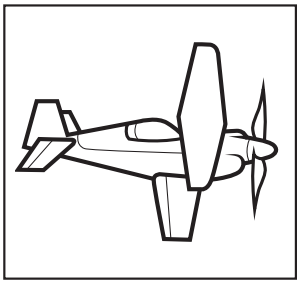
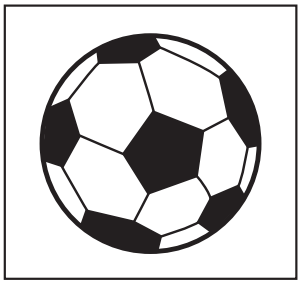
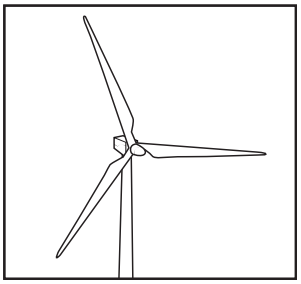
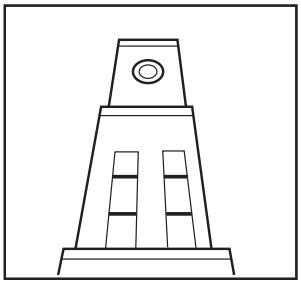
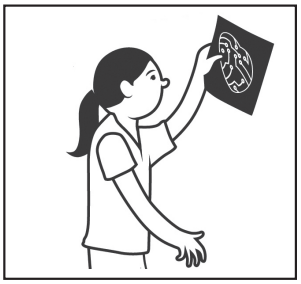
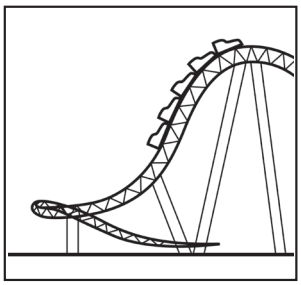
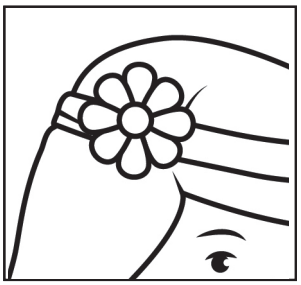
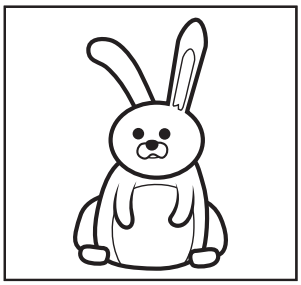
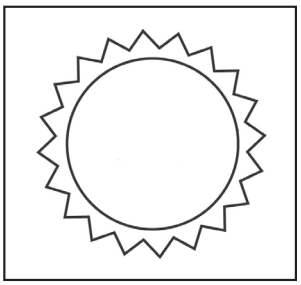
They help us **LEARN** and **PLAY**, by creating computers, tablets, video games, toys, and phones.

Now you know: Engineers create things that are **TALL**, **FAST**, and **FUN**. They help us **LEARN** and **PLAY**. They also **PROTECT THE EARTH** and **HELP SAVE LIVES**.

If you were an engineer, what would you create? Draw it below.

Time to go on a scavenger hunt!

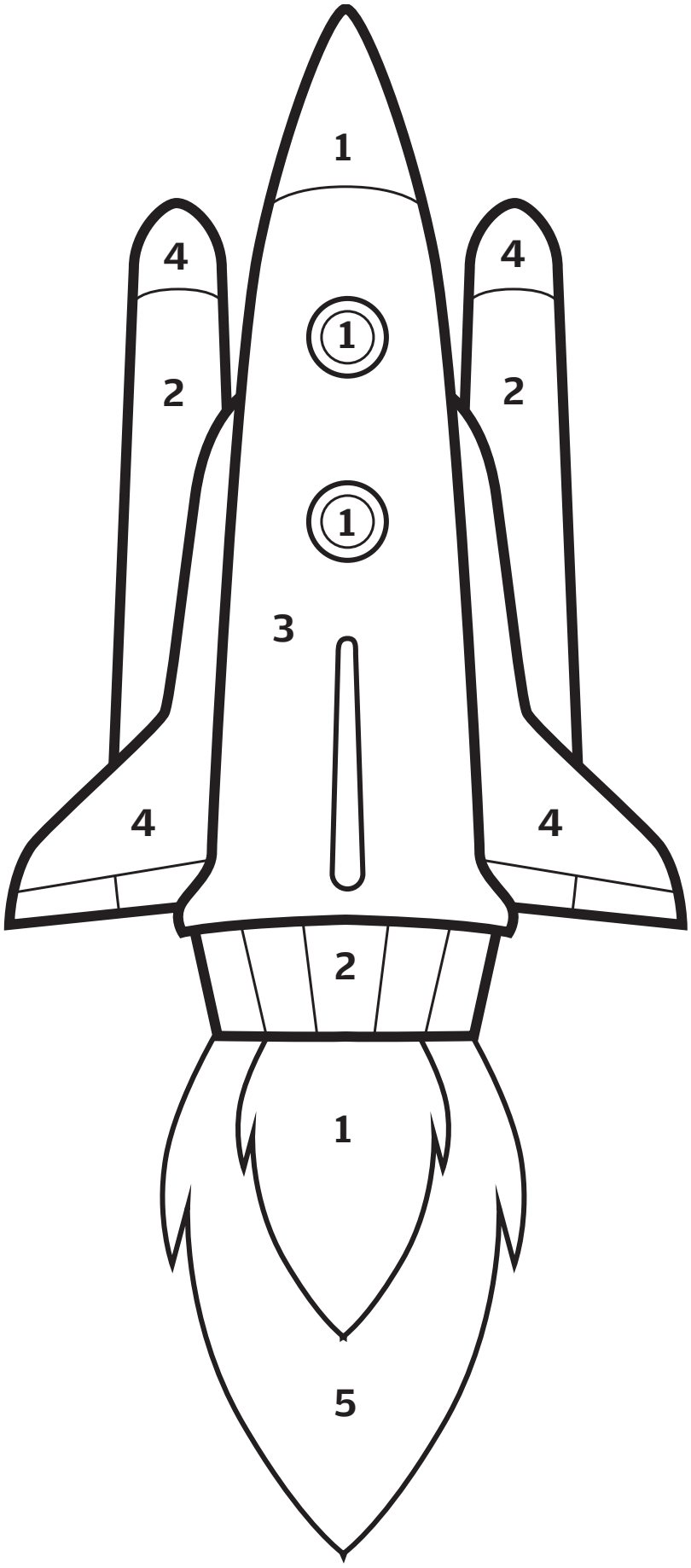
Can you find these details from the drawings in this book? Put an X on the item once you've found it!

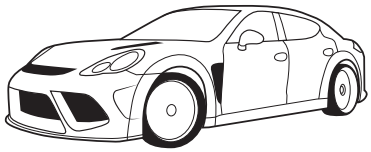
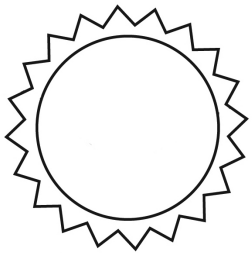
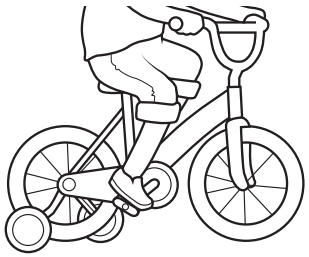
Let's color!

If you'd like, follow the coloring code below:

1 = RED
2 = GREEN
3 = BLUE
4 = PURPLE
5 = YELLOW

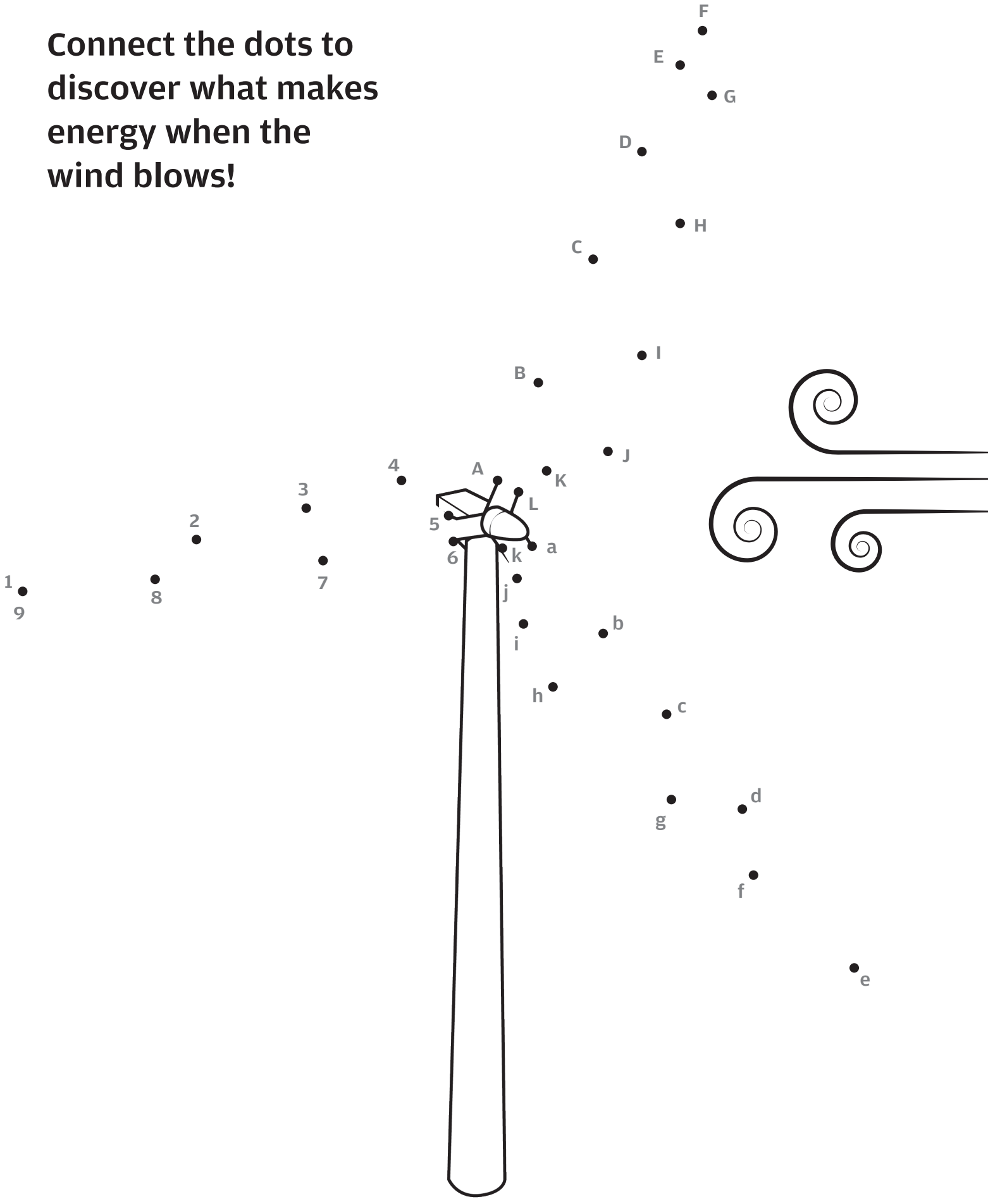


Can you fill in the blank to spell these words? What other rhymes can you think of for the words below?

Fill in the missing letter.	Rhymes with...
 = _____all	_____
 = _____ar	_____
 = _____un	_____
 = _____ike	_____
 = _____and	_____

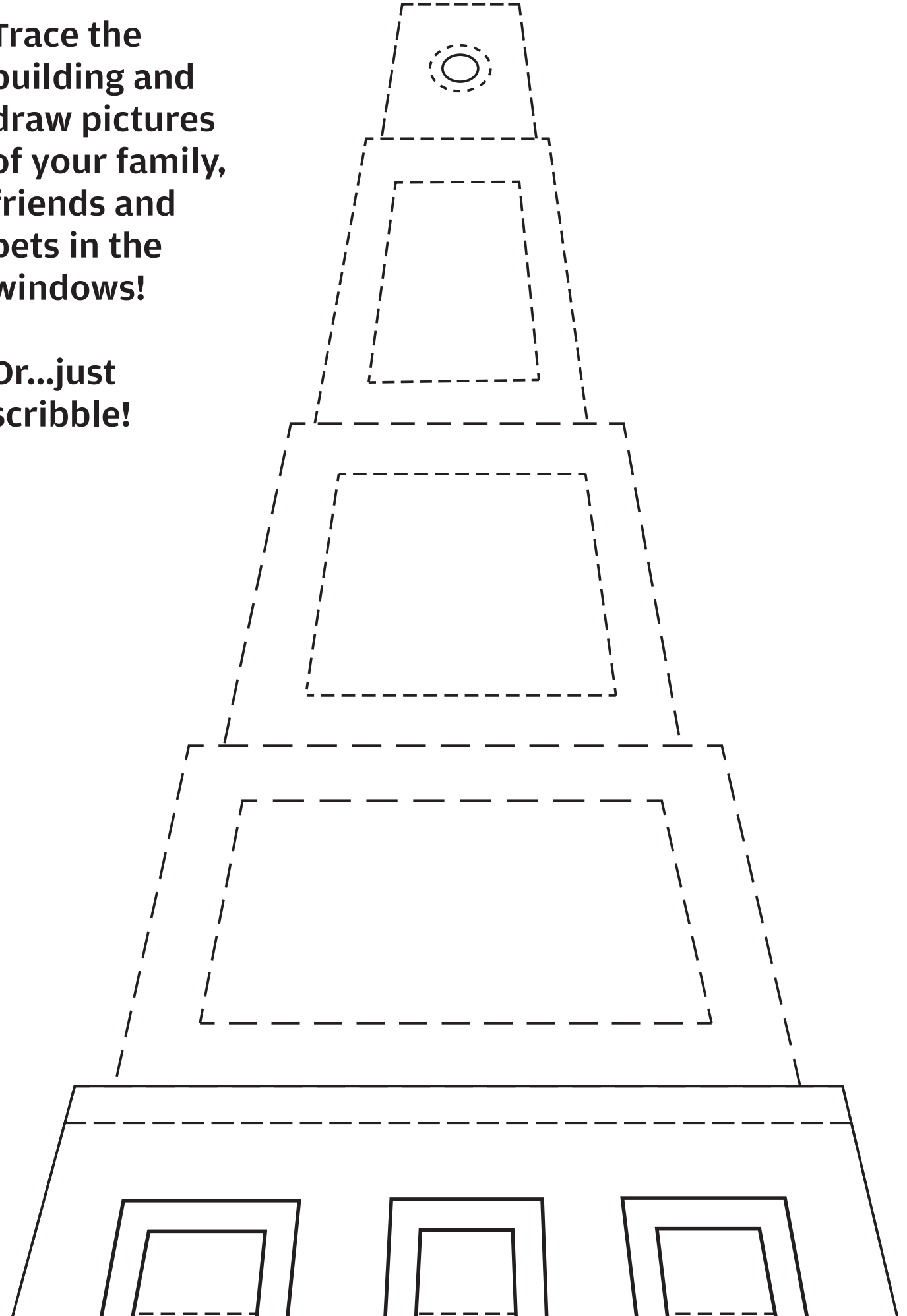
Help Kaely get through the maze to her friend!

Connect the dots to discover what makes energy when the wind blows!

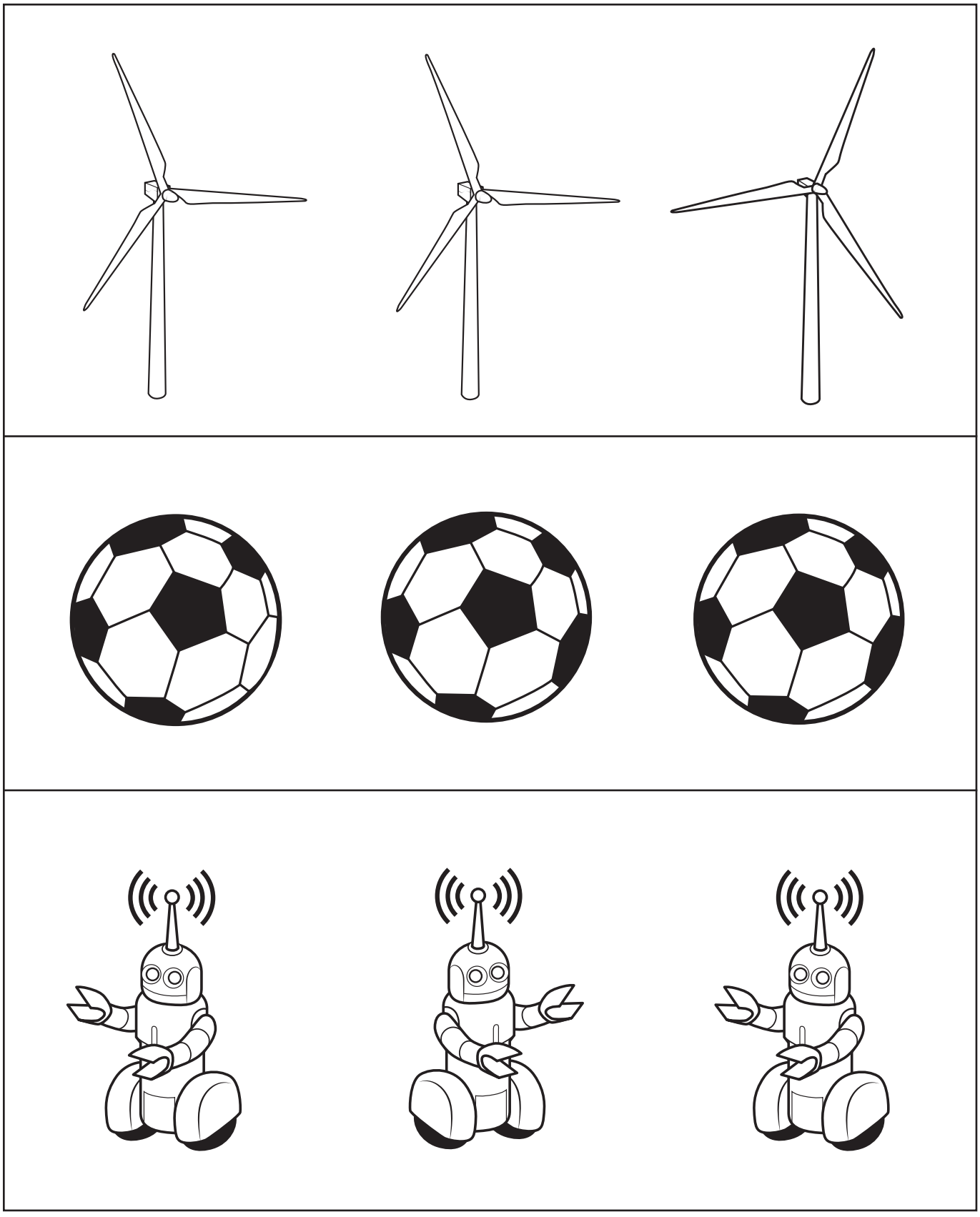


Trace the building and draw pictures of your family, friends and pets in the windows!

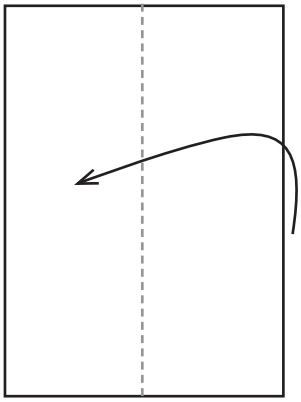
Or...just scribble!



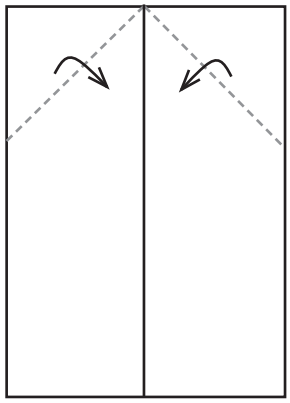
Circle the picture in each row that is different from the others!



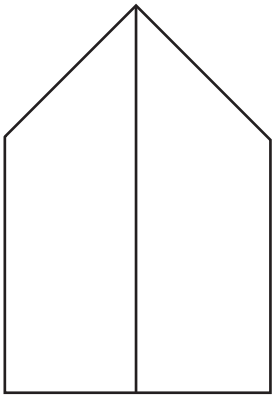
Get a sheet of paper (or carefully tear a page from this book) and make a paper airplane! Have a parent, older sibling or friend help you follow the instructions below.



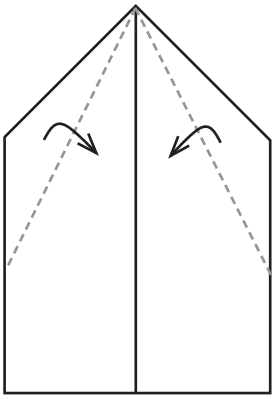
1. Fold paper in half to make a crease and then open it up again.



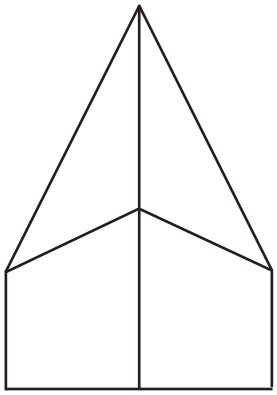
2. Fold down the corners to the center crease.



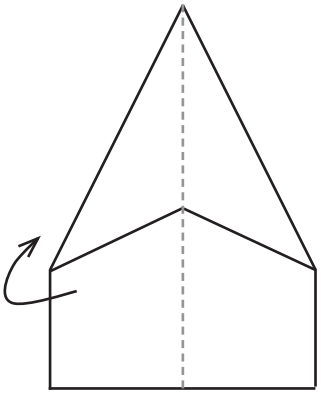
It should look like this now.



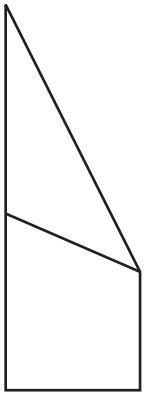
3. Now, fold down the top edges to the center crease.



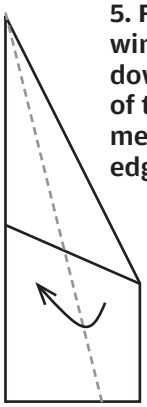
The plane should look like this now.



4. Next, fold the plane in half, on the crease.



The plane should look like this now.



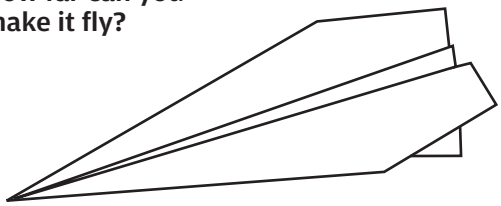
5. Finally, make wings by folding down each side of the plane so it meets the bottom edge.

It should look like this on its side.

6. Turn the plane upright and open the wings so it looks like a plane.

How far can you make it fly?

Find more paper airplane designs online at foldnfly.com. Which ones fly the furthest?



For Parents / Educators

DISCUSS

1. Before reading the book together, ask your children what they think an engineer does. What do they think after reading the book? What most surprised them?

2. Ask what page of the book is most interesting and why.

3. Talk about how the inventions on these pages have changed over time. Tell them what phones were like when you were young. What changes to today's phones can children imagine may come in the future?

4. Talk about improving each invention. What would children change? How would they go about it? Encourage them to think big! What do their answers mean for materials, and anything else that would also need to be engineered?

ACTIVITIES

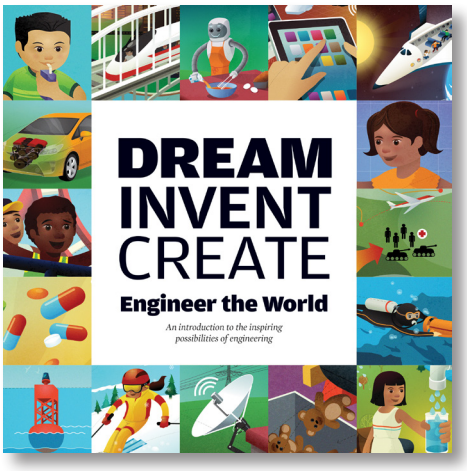
1. Make a list! Ask children to identify the items created by engineers in your home or in the classroom. How have these objects changed or improved over time?

2. Build a paper airplane together (page 18) and see how far it can fly. Go online for alternative designs! Use childrens' suggestions to come up with other ways to make paper airplanes! Talk about the ways the different planes fly – or don't.

3. Using disposable plastic cups, build the tallest tower that will stand. Help children understand how a strong base can support a taller tower. Next, make a bridge using 2 cups for the supports and paper for the span. How many coins can the bridge support? Experiment with heavier paper and more cups for support.

3. Make bath time a lesson in buoyancy and flotation! Which waterproof toys float and which sink? Ask your child to predict what will happen with each toy.

4. Teach children more about engineering with our whimsical, rhyming, elementary-school book, **Dream, Invent, Create: Engineer the World**, available on our website, start-engineering.com.



Engineering is everywhere!

Coloring the pictures and doing the activities in this book will help children see that engineering is all around them.

This little bike rider is ready to go, thanks to the work of engineers. The trails she uses, the helmet and shoes she wears and — of course — the bike she rides are all feats of engineering.

Life takes engineering. When children see that imagination and engineering go hand in hand, there's no stopping them! We invite you to read this book with your child and share the ride.

Start Engineering

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www.start-engineering.com

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Start Engineering is a small company with a sharp focus: K-12 engineering outreach. We publish books, develop information resources, and collaborate with individuals and groups to bring a good word about engineering to K-12 audiences of all kinds. We invite you to learn more about us, check out our books, and read our blog at **www.start-engineering.com**.

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