

# Discover Girl Scouts 2: STEAM & ROBOTS

**Set-up:** Have an area with floor space for the girls to sit in a circle and play games and tables where adults can sit and the girls can make their robots. (Tables in a horseshoe work well)

## Set-up Materials Needed:

- Tablecloth
- Pens
- Crayons on the tables
- List of local troops
- Paper registration forms
- Scripts for volunteers
- Optional:
- Sample Badge Books
- Grade Signs for tables (K,1<sup>st</sup>, etc.)

Time	Activity	Materials
<b>10 Mins</b>	<p><b><u>Check-In and Arrival Activity</u></b></p> <p>As families enter, they check themselves in on the attendee list or fill out lead forms, then take informational flyers, a nametag, and an activity sheet, and go to the table to complete them. Optional: Put grade, school, or level signs on the tables ahead of time and ask people to sit accordingly. This will help them (and you!) see the groups and get an idea of how to make potential troops. It will also aid the conversation about needing two volunteers to co-lead a new troop.</p>	<ul style="list-style-type: none"> <li>• Attendee List</li> <li>• Lead Forms</li> <li>• Informational Flyers</li> <li>• Name Tags</li> <li>• I SPY Robot Activity Sheet</li> </ul>
<b>2 Mins</b>	<p><b><u>Welcome and Upfront Contract</u></b></p> <p><i>(INVITE GIRLS AND FAMILIES TO GATHER AND STAND IN A CIRCLE)</i></p> <p>It's great to see you all again for our next session of Make New Friends! For those of you who are new, welcome! My name is <i>(NAME)</i> and with the help of <i>(NAMES OF HELPERS/TROOP#)</i>, we are going to have some fun with robots today! And while we are working on our robots, we will have time to answer any questions you have about our Girl Scout program and forming troops.</p>	
<b>5 Mins</b>	<p><b><u>Opening</u></b></p> <p>First, let's begin our meeting with the tradition of reciting the Girl Scout Promise. Raise your hand if you have ever made a promise. <i>(WAIT FOR HANDS)</i> For those of you who weren't here last time, the Girl Scout Promise is the way Girl Scouts agree to act every day toward each other and the world! We hold up 3 fingers to represent the 3 parts of the promise. Can you try holding up your fingers and saying the promise with me?</p> <p><i>(DEMONSTRATE THE GIRL SCOUT SIGN AND MAKE SURE EACH GIRL CAN DO IT BEFORE CONTINUING)</i></p> <p>Great! Now, let's practice! Our Girl Scout promise has the word "God" in it. As we say the Promise, you may substitute the word God to match your own spiritual beliefs. Okay, so is everyone holding up their Girl Scout Signs? <i>(CHECK THAT THEY ARE)</i> Great! Please repeat after me as I say each line of the Girl Scout Promise.</p> <p><i>On my honor, I will try: (WAIT FOR GIRLS TO REPEAT)</i>  <i>To serve God and my country, (WAIT FOR GIRLS TO REPEAT)</i>  <i>To help people at all times, (WAIT FOR GIRLS TO REPEAT)</i>  <i>And to live by the Girl Scout Law (WAIT FOR GIRLS TO REPEAT)</i></p>	

<p><b>5 Mins</b></p>	<p><b><u>Ice Breaker</u></b>  <i>(INVITE THE ADULTS TO SIT AT THE TABLES AND ASK THE GIRLS TO JOIN YOU BY SITTING IN A GIRL SCOUT CIRCLE ON THE FLOOR)</i></p> <p><i>(EXPLAIN WHY GIRL SCOUTS SIT IN CIRCLES: EVERYONE GETS A CHANCE TO SPEAK AND EVERYONE LISTENS TO EACH OTHER)</i></p> <p>When you become a Girl Scout, you get to try all kinds of fun activities with friends! Have any of you thought more about what you want to do when you are a Girl Scout? Let's go around the circle, introduce ourselves, and share what kinds of things we want to try in Girl Scouts.</p> <p><i>(GO AROUND THE CIRCLE LETTING EACH GIRL RESPOND)</i></p> <p>All those things are possible in Girl Scouts and more! When you are part of a troop, YOU get to choose the kinds of activities you want to do! You can: Get outdoors for a walk, hike, or outdoor art project. Run your very own cookie business. Take a field trip to explore your community. And meet lots of other Girl Scouts!</p> <p>One of the things Girl Scouts love the most is to help people, animals, and the planet! They are always finding ways to solve problems and make the world a better place.</p> <p>Robots are <i>also</i> very helpful in solving problems and helping humans do things - especially things we cannot do ourselves! Today we are going to learn more about robots and the people who make them. Then we are going to build our own Launching Robots!</p>	
<p><b>10 Mins</b></p>	<p><b><u>All About Robots</u></b>  <i>(AFTER EACH QUESTION, LET 2-3 GIRLS ANSWER, THEN CONTINUE)</i></p> <p>Who can tell me – what is a robot?</p> <p><b>Answer (kids):</b> A <b>ROBOT</b> is a machine made of different parts that work together to do things all by itself!</p> <p>That's right! Many people think robots look and act like people (like in the movies). But robots can come in all shapes and sizes! Some are teeny-tiny, and some are bigger than a car!</p> <p>Now here's a tricky question – what makes a robot <i>special</i> compared to other machines?</p> <p><b>Answer (kids):</b> A robot can follow instructions automatically!</p> <p>Exactly! Robots don't always need someone pushing a button or flipping a switch. They can be <b>PROGRAMMED</b> – (that's a fancy word for "given instructions") – to do jobs all on their own.</p> <p><i>(SHOW GIRLS PICTURES OF DIFFERENT ROBOTS. LET THEM GUESS WHAT EACH ROBOT DOES. NOTE HOW EACH ROBOT IS DIFFERENT AND ASK GIRLS WHY ROBOTS LOOK DIFFERENT IF THEY DO DIFFERENT JOBS.)</i></p>	<ul style="list-style-type: none"> <li>• Pictures of robots, engineers and programmers</li> </ul>

	<p>So, who do you think builds robots?</p> <p><b>Answer (kids): ENGINEERS.</b></p> <p>Yes! Can everyone say “engineer”? (pause and repeat with them) Engineers are problem-solvers. They are super creative inventors who use their imagination to build all kinds of amazing things that make people’s lives easier – like bridges, buildings, airplanes, and even video games! <b>ROBOTIC ENGINEERS</b> think of ways that people can use robots! They figure out what the robot needs to do, decide what materials to build it with, and then come up with a way to make the robot work!</p> <p><i>(SHOW PICTURE OF ENGINEERS)</i></p> <p>Let’s see if you remember – what makes robots different from other machines?</p> <p><b>Answer (kids):</b> They can follow instructions to do things by themselves.</p> <p>Right! But who writes those special instructions?</p> <p><b>Answer (kids): PROGRAMMERS!</b></p> <p>Yes! Programmers are the people who write <b>CODES</b>. Has anyone done <b>CODING</b> in school before? Codes are step-by-step instructions that tell robots exactly what to do. It’s kind of like a recipe, but instead of baking cookies, you’re making a robot dance, or clean, or even explore outer space!</p> <p><i>(SHOW PICTURE OF PROGRAMMERS)</i></p>	
10 Mins	<p><b><u>Coding Game</u></b> <i>(HAVE GIRLS JOIN THEIR ADULTS AT THE TABLE (OR GO TO THEIR OWN TABLE). USE THE BACK SIDE OF THEIR I SPY PAPERS AND A CRAYON)</i></p> <p>We’re going to play a game now. I am your Programmer, and you are my Robot Artists. Robots can only do exactly what the Programmer says – nothing more, nothing less. That’s called following the <b>CODE</b>. Are you ready to follow my code and draw something?</p> <ul style="list-style-type: none"> <li>• Draw a BIG circle in the middle of your page.</li> <li>• Inside the circle, draw an upside-down triangle.</li> <li>• Above the triangle, draw two little circles, side by side.</li> <li>• Underneath the triangle, draw one straight line going down.</li> <li>• At the bottom of that line, draw a curve going left toward the edge of the big circle.</li> <li>• On the right side of the straight line, draw another curve going toward the edge of the big circle.</li> <li>• Next to the triangle, draw three short lines sticking out.</li> <li>• Draw three more lines on the other side of the triangle.</li> <li>• On top of the big circle, draw two small triangles, side by side, pointing up.</li> </ul>	<ul style="list-style-type: none"> <li>• Back side of their I SPY papers</li> <li>• Picture of cat face</li> </ul>

	<p>Robot Artists, put down your crayons. Hold up your pictures and let's see what we made! Does it look like a cat face? Do all our cats look <i>exactly</i> the same? Are all the parts in the right places?</p> <p>Uh-oh, is something missing from our cats?</p> <p><b>Answer (kids):</b> Eyeballs</p> <p>Programmers call these mistakes <i>bugs</i>. And when you fix the mistakes, that's called <i>debugging</i>. Let's debug our code together. What code can we add to make sure our cats have eyeballs?</p> <p><b>Answer (kids):</b> Draw two small diamonds inside the small circles.</p> <p>Great job, Robot Artists! You just programmed, found a bug, and debugged your code – just like real engineers and programmers do every day!</p>	
10-15 Mins	<p><b><u>Robot Launcher Activity</u></b></p> <p>Okay, now we are going to make our Robot Launchers! Please take out your Robot Launcher activity sheets.</p> <ul style="list-style-type: none"> <li>First, we are going to think like engineers and design our own robots! If you could build a robot to help you with something, what would your robot do? What would your robot look like? What would it need to work the way you want it to? (<i>Examples: hands and fingers to pick things up or hold a pencil, special equipment like an oven, washing machine, vacuum, broom, wheels, etc.</i>)</li> <li>Once you have some ideas of what it would look like, take a few minutes to draw your robot in the rectangle on your Activity Sheet. Color it in however you want – and make sure you color the little triangles on the paper too. Those are your Robot Launcher's wings!</li> <li>When you are done coloring your robot, cut all your pieces out along the dotted lines. Please do not cut the solid lines.</li> <li>Next, grab one of your cups and put the other one to the side. We will only be working with the one paper cup until the very end!</li> <li><b>OPTIONAL IF NOT PRE-CUT:</b> Cut four equally spaced slits into the rim of your cups. Then, cut two pieces of rubber band – make them about the length of the cup's opening.</li> <li>Tie a knot at each end of both rubber bands, and then slip the ends of the rubber bands into the slits of the cup (so the rubber bands make an X in the bottom of the cup).</li> <li>Place your cup upside down on the table. Fold along the solid lines on your robot's wing pieces. Use a glue stick on the tabs to attach them to the sides of the paper cup. Now use the glue stick to add your robot wherever you would like it to ride!</li> <li>Now we are ready to launch! Set your robot launcher onto your other upside-down paper cup. The rubber bands in the bottom of your robot launcher will rest on your second cup. Press the robot launcher down and let go! See how high you can launch your robot!</li> </ul>	<ul style="list-style-type: none"> <li>Printed Robot Launcher sheets</li> <li>Paper cups (2 per girl) (pre-cut one for younger girls)</li> <li>Rubber Bands (2 per girl) (pre-cut and tied for younger girls)</li> <li>Scissors</li> <li>Glue Sticks</li> </ul>

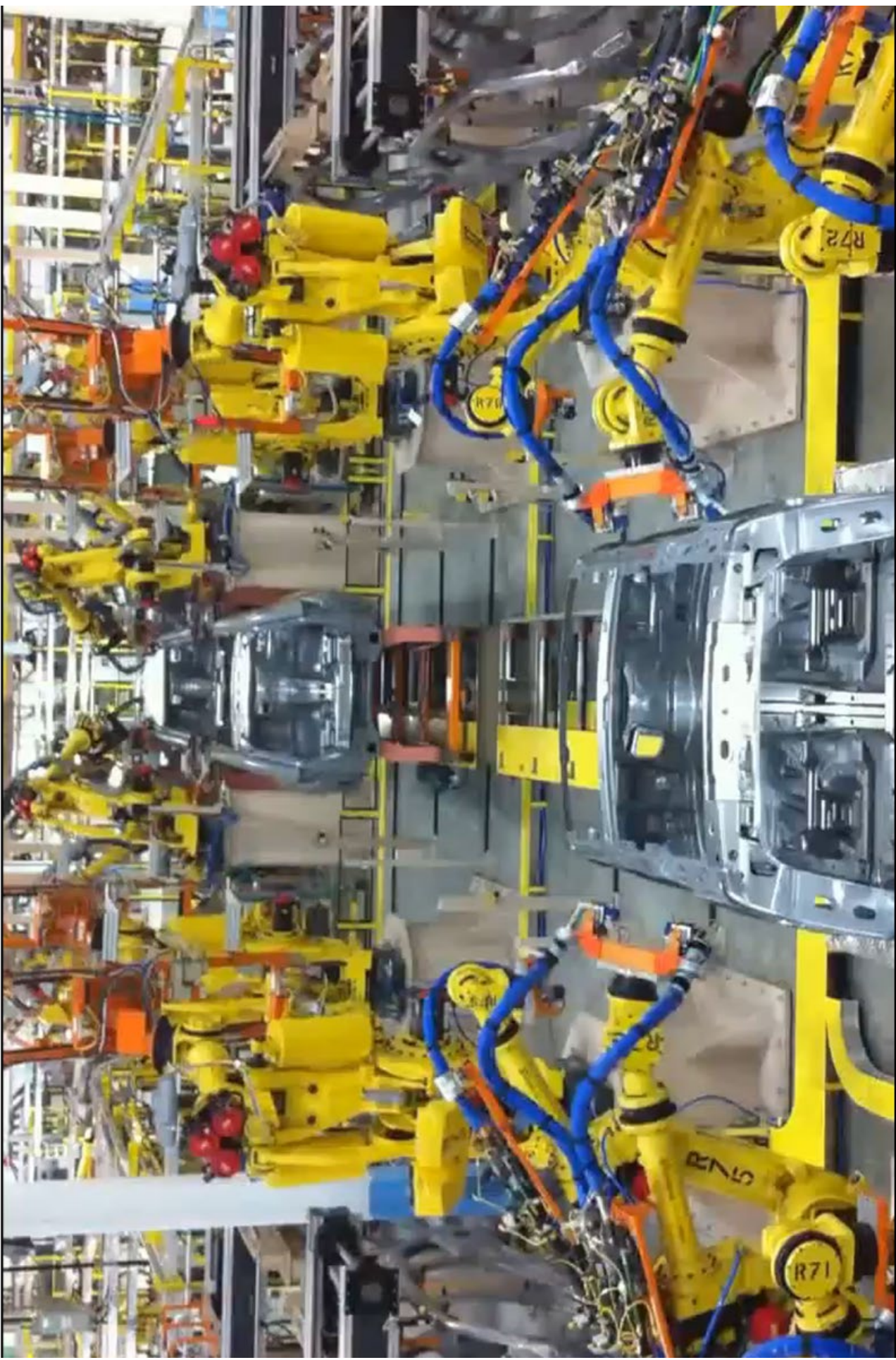
<b>5 Mins</b>	<b><u>Optional Game: Programmer Says</u></b> If there is time, play Programmer Says (played like Simon Says). Let the girls take turns being the “Programmer” while the rest are the “Robots.”	
<b>5 Mins</b>	<b><u>Closing</u></b> <i>INVITE ADULTS AND GIRLS TO STAND IN A CIRCLE)</i>  Thank the girls and families for attending. Tell them about our last Girl Scout Make New Friends session (date, time, location). Encourage girls to invite a friend to the next session. Tell the guardians that you will stay for questions and help with online registration (or paper registration forms) for those who are ready to join.  <i>(CLOSE WITH GIRL SCOUT FRIENDSHIP CIRCLE)</i>  Stay for questions. Assist with registration and/or collect paper registration forms. Be sure to talk to anyone you already have a troop placement for.	
	<b><u>Wrapping Up</u></b> Leave the room better than you found it. Give the volunteers their community service hour forms (and goodies!).	<ul style="list-style-type: none"> <li>• Community service forms</li> <li>• Goodies for volunteers</li> </ul>



This Robot is vacuuming a house!



This robot is vacuuming the pool!



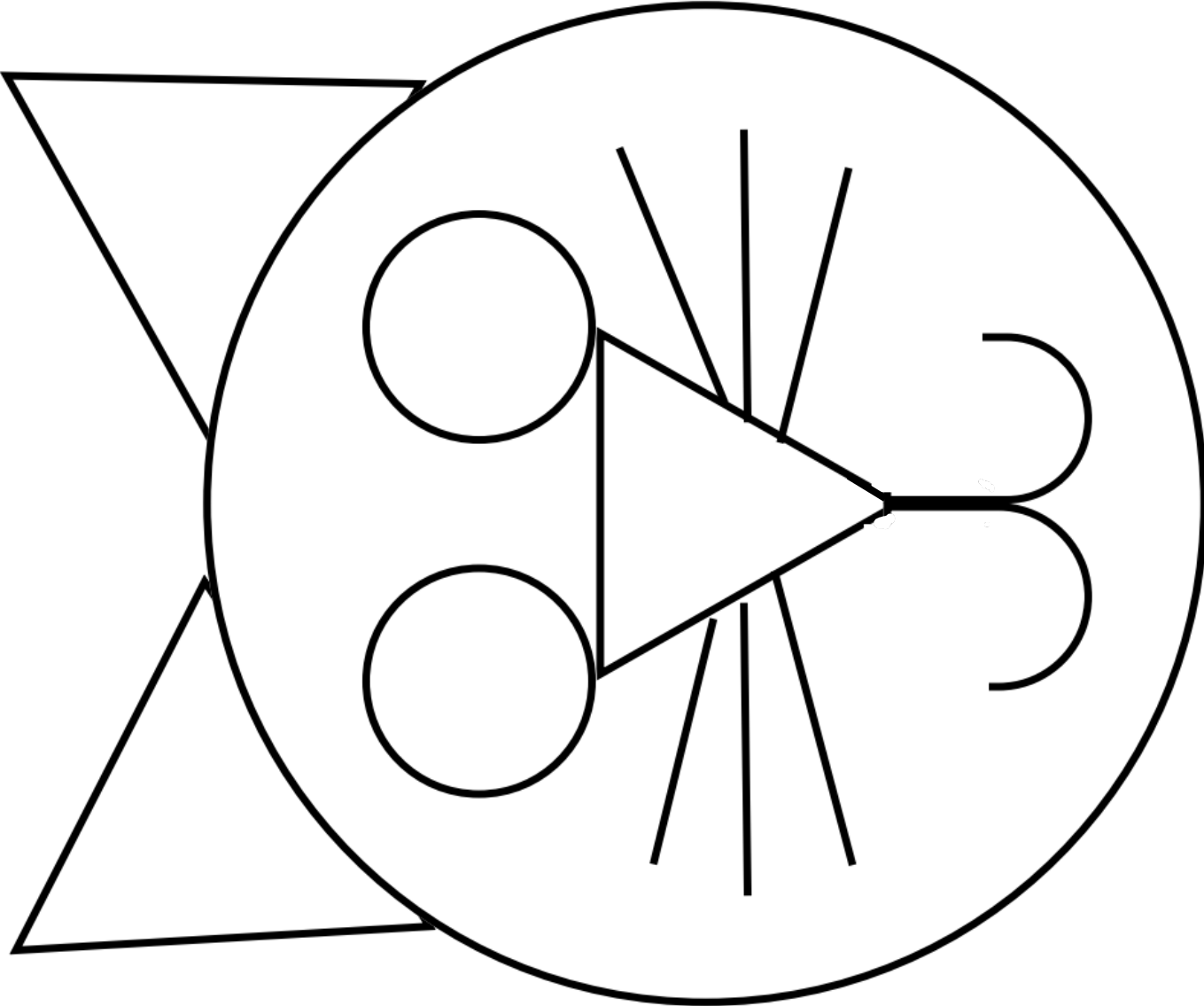
These robots are building cars!



This robot is making deliveries in a hospital!

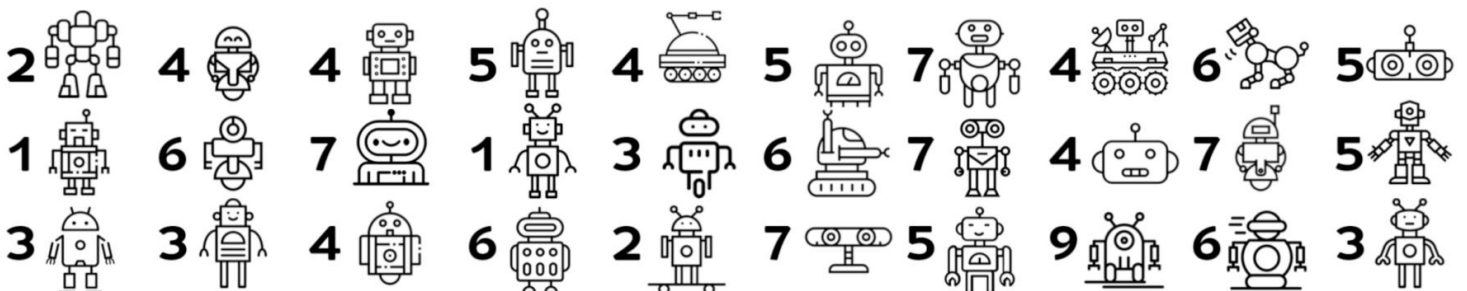
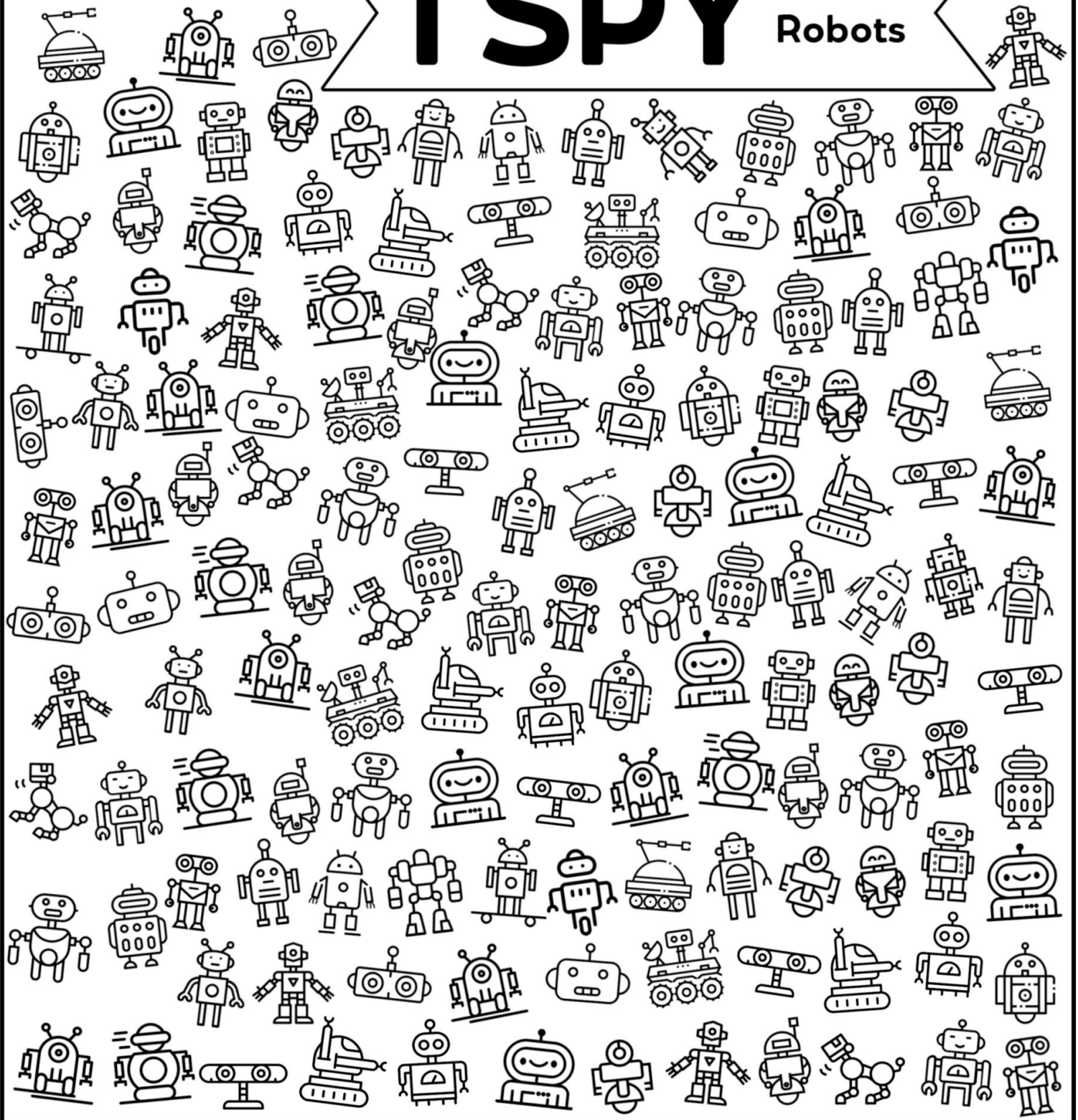






# I SPY

## Robots



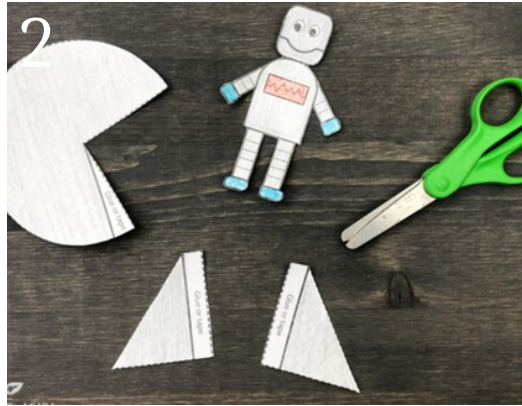


# Robot Launcher Cup Craft

girl scouts 



Color the pieces on the coloring sheet



Cut the rocket pieces out along the dotted lines. Do not cut the solid lines. Those are the lines you will fold along in the next step



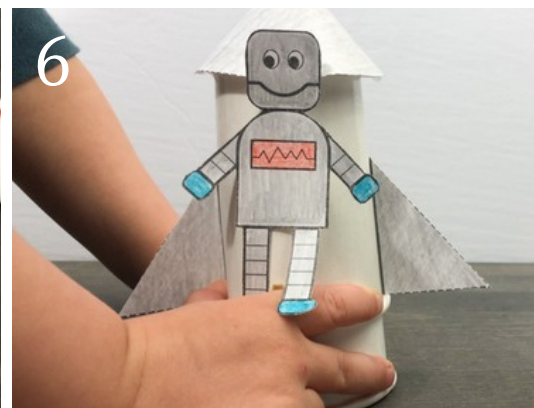
Cut four equally-spaced slits into the paper cup. Next, cut two pieces of rubber band, about the width of the cup's opening. Tie a knot at each end, and then slip each end of each rubber band into each slit of the cup.



Fold along the solid lines on the fin pieces. Use glue or tape on the tab to attach it to the paper cup. (Disregard the cone on top)

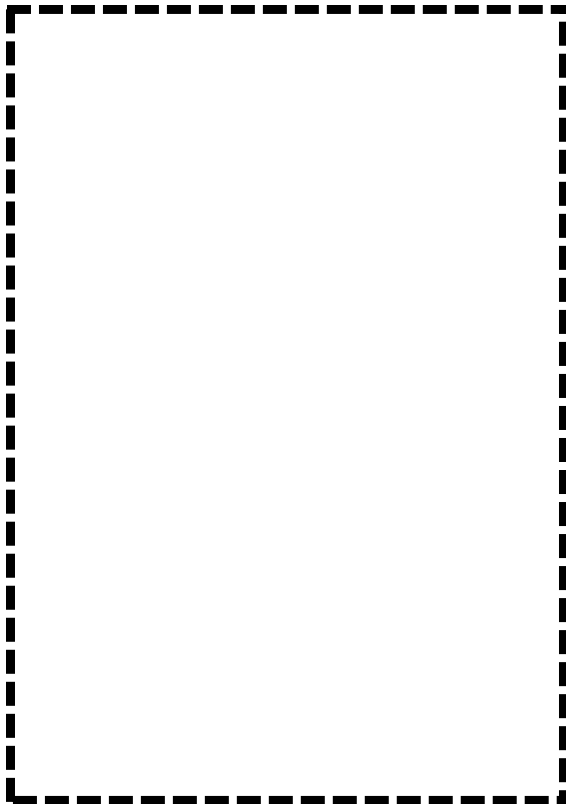
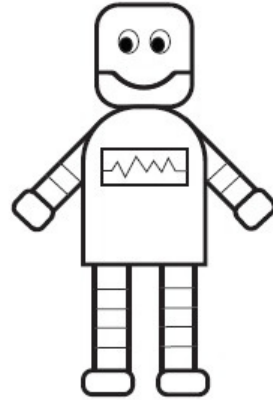


Now add the robot where you'd like him to ride!



Launching your rocket is simple! To launch your rocket, you will set the rocket cup onto another paper cup. The rubberbands in the opening of the rocket will rest on the bottom of the second cup. Press the cup down and let go to launch your rocket!

# Robot Launcher Cup Craft



Draw your robot  
in this rectangle!

