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4-H inspires kids everywhere to take an interest in STEM topics (science, technology engineering and math) through hands-on learning.

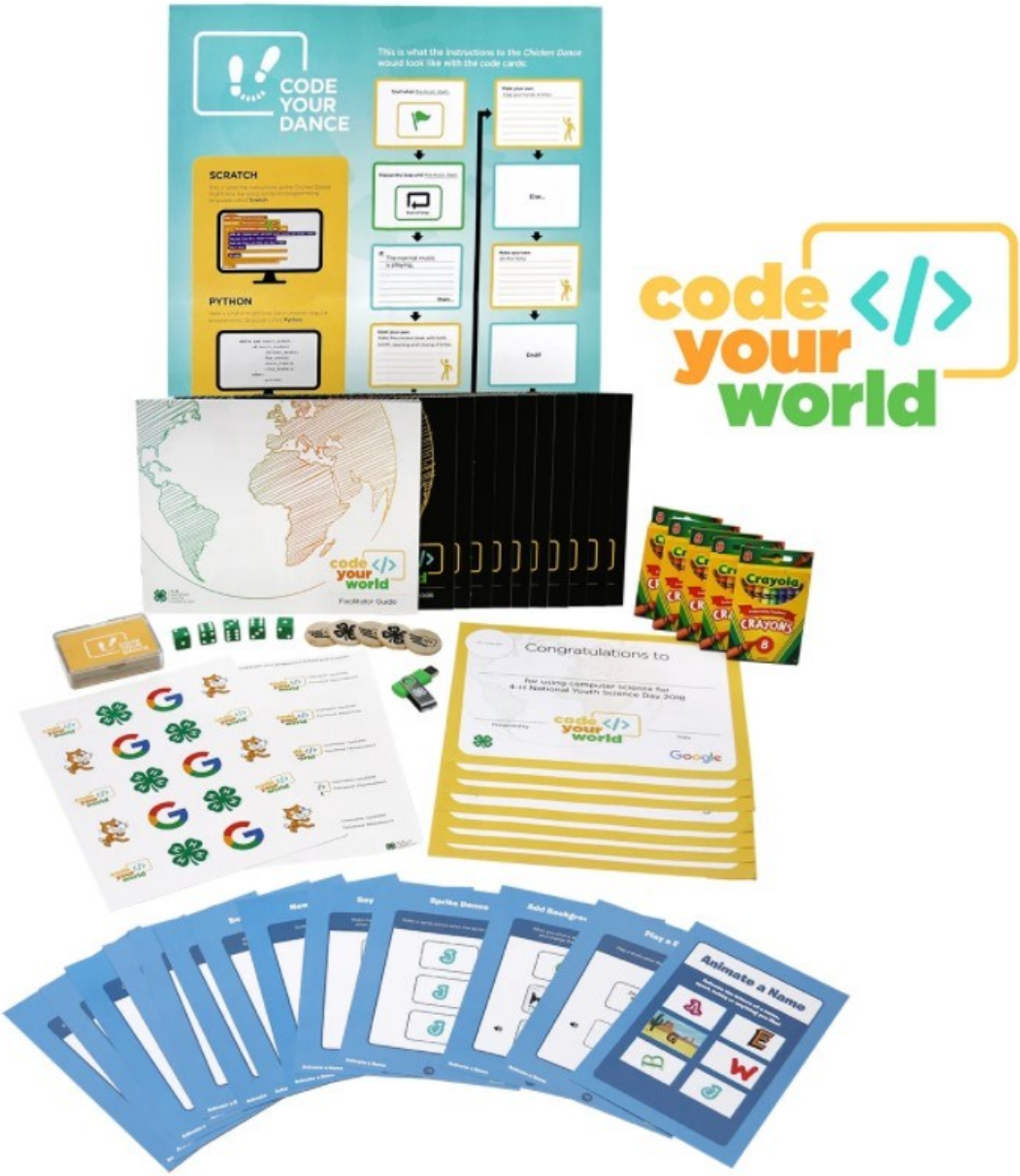
4-H STEM programs provide young people with opportunities to have fun learning about and using science, technology, engineering and math to envision themselves as future scientists and engineers, and to use what they learn to contribute to their communities.

We have five different kits available for 4-H youth or clubs to check out and use.

1. Code your World
2. Drone Discovery
3. Game Changers
4. Mars Base Camp
5. Motion Commotion

MU Extension
University of Missouri

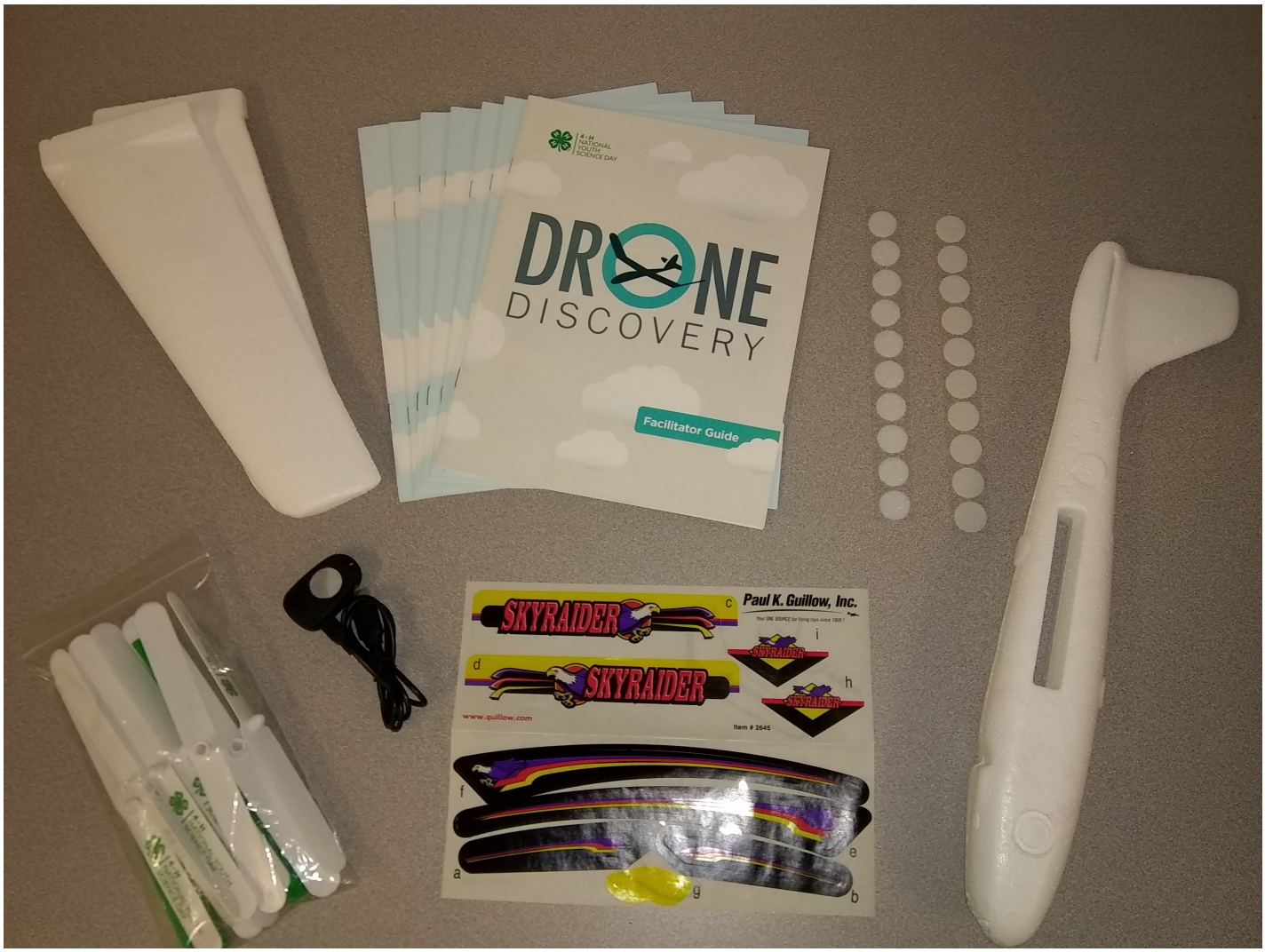
code your world



Code Your World is a four-part challenge that teaches kids to apply computer science to the world around them through hands -on activities. Developed by **Google**, **4-H**, and **West Virginia University Extension Service**, it includes a computer-based activity on Google's CS First platform and three unplugged activities that bring coding to life through games and interaction. This kit was created as the 2018 National Youth Science Day challenge, but activities can be enjoyed at any point.

- Perfect for first-time and beginner coders ages 8-14
- Each kit is designed to accommodate up to 10 youth
- Teachers and facilitators don't need any prior experience with computer science or coding to bring *Code Your World* to their students
- Designed to fit classroom-use or out of school time learning, with four activities that can be enjoyed individually or all together

Drone Discovery



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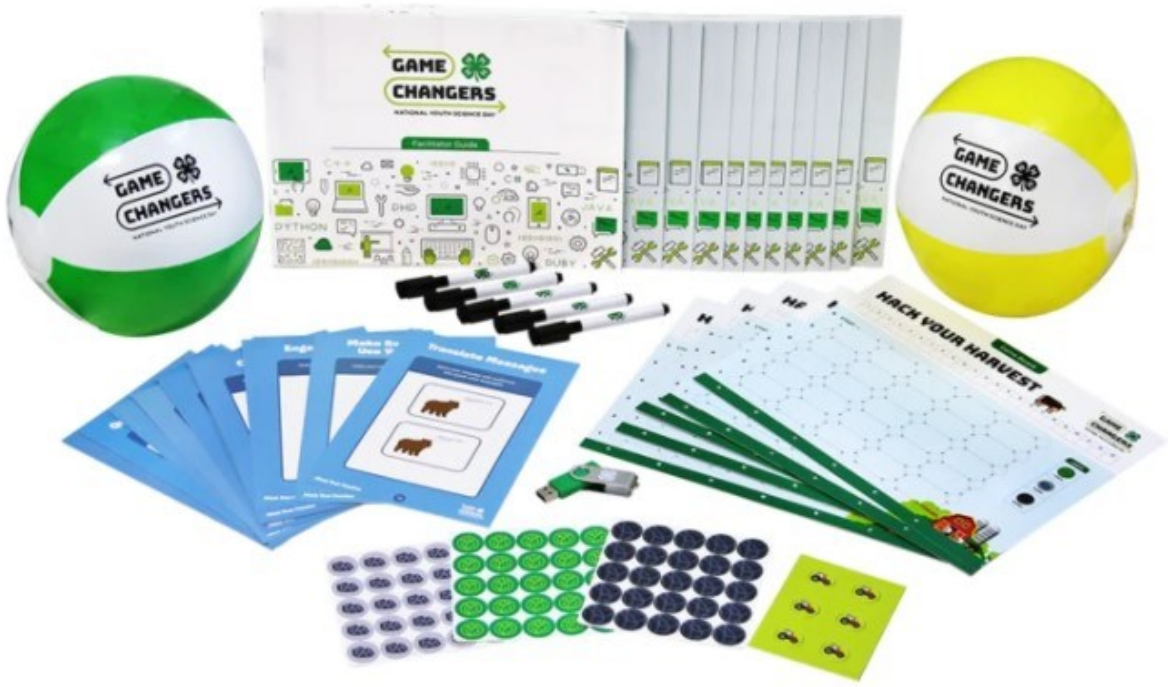
Drone Discovery, explores the engineering design and flight principles of drones. The activities demonstrate how drones and remote sensing can be used to solve real-world problems. The Drone Discovery challenges, if completed at the same time, are designed to take approximately two hours and are appropriate for students from grade 4 and above. Additional activities provide suggestions to extend learning about drones to real-world applications. The goal is to introduce young people and spark their interest in STEM opportunities.

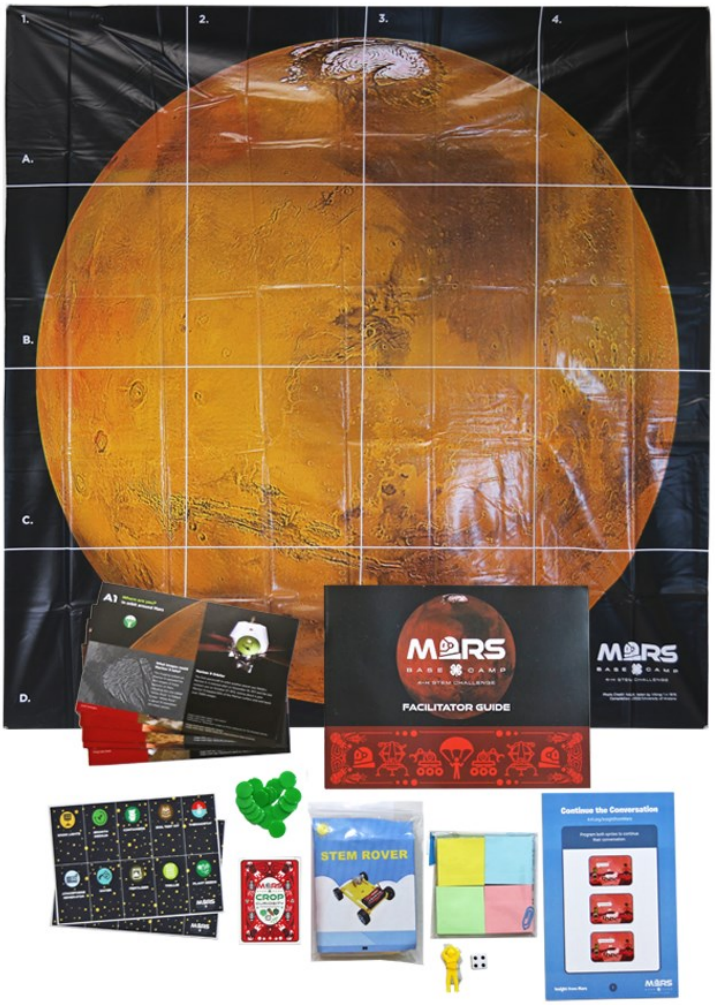
Game Changers



Game Changers is a collection of 3 activities that teaches kids computer science (CS) skills through game play and puzzles centered around topics they care passionately about. Developed by Google, 4-H, and West Virginia University Extension Service, it includes a computer-based activity on Google's CS First platform and two unplugged activities:

- Pitch Your Passion is an online activity that teaches kids to use CS and animation to advocate for a cause or issue they care about using CS First and Scratch. Can be completed on tablets or computers.
- Program Your Playground is an unplugged activity where kids use CS skills like decomposition and conditional logic to design their own versions of tag and invent new sports and games.
- Hack Your Harvest is an unplugged activity where kids will use CS concepts like automation optimal efficiency to solve and create logic puzzles related to agriculture—or any topic kids can think of.

Mars Base Camp



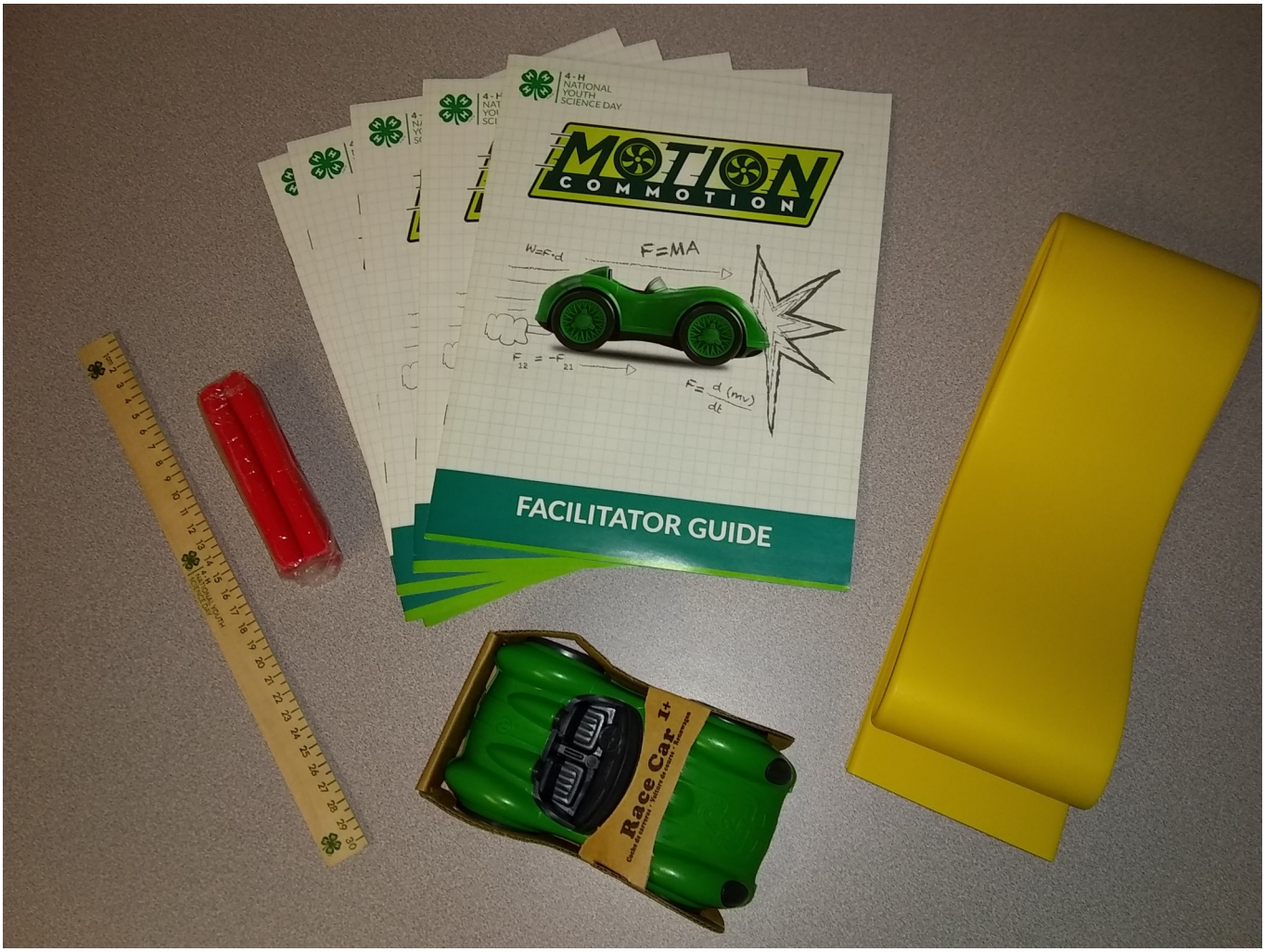
The race to land humans on Mars is on! The 2020 4-H STEM Challenge will explore sending a mission to Mars with the activity, Mars Base Camp. Developed by Google and Virginia Cooperative Extension, Mars Base Camp is a collection of activities that teaches kids ages 8-14 STEM skills like mechanical engineering, physics, computer science, and agriculture.

Supported by national partners—Bayer, Toyota, and U.S. Air Force—Mars Base Camp is the perfect topic to empower young people to explore a wide range of subject areas in an exciting thematic package, one that allows kids to think about the same problems that today's top scientists and engineers are working on right now.

Featuring four hands-on activities that can be enjoyed with or without internet access and individually or all together, the challenge teaches kids STEM skills like mechanical engineering, physics, computer science and agriculture.

- Landing Zone Surveyor is an unplugged activity where kids will attempt to land on Mars and discover features that are important for setting up a base camp.
- Red Planet Odyssey is an unplugged activity where kids will use engineering skills to build a vehicle that can explore the surface of Mars.
- Crop Curiosity is an unplugged activity where kids will learn about biology, environmental science, and agriculture to grow nutritionally efficient food on Mars.
- Insight from Mars is an activity that can be done unplugged or online that teaches kids to code and share a discovery they made on Mars using CS First and Scratch.

Motion Commotion



Motion Commotion was created as a fun activity for groups of youth to explore the Science of Motion.

For more than 100 years, 4-H has been at the forefront of teaching youth about science, technology, engineering, and math (STEM). Our hands-on programs empower youth and provide them with opportunities to grow, learn, and become confident. According to the Positive Development of Youth: Findings from the 4-H Study of Positive Youth Development, a longitudinal study that began in 2002, youth who participate in 4-H are more likely to pursue STEM careers.

This experiment is designed to take about an hour and is appropriate for youth in grades 4 and above.