

DRONEBLOCKS



```
takeoff
set distance to 50
repeat 3 times
do
fly x 20 in , y 30 in , z 40 in
flip backward
land
```

```
takeoff(10);
change_altitude(40);
flyForward(75, 25);
hover(5);
pitchGimbal(25);
video('start', 20);
video('stop');
takePhoto(5, 5);
for (var count = 0; count < 3; count++) {
  video('start');
  yawRight(10, 30);
  flyForward(25, 10);
  change_altitude(25);
  pitchGimbal(25);
}
```

Overview

Drones are not only a fun and engaging tool, but the applications in STEAM education are proving to be extensive and inclusive. Our curriculum can be applied with **varying age ranges** and is extremely conducive to students with diverse learning styles by helping them explore **math, science and logic** through fun and practical application. Students will learn **Block, Python, and JavaScript** coding by executing their code on small indoor friendly Tello drones that will **fly autonomously indoors**.

DroneBlocks Members will have full access to all DroneBlocks curriculum and DroneBlocks software (**including our new drone simulator**). The simulator can take advantage of any DroneBlocks "Block-Coding" curriculum and missions for distance learning. We also offer **professional development services**; Our one on one sessions are available to assist educators, walk through curriculum, and build user confidence. With the use of brain-based learning and coaching models we create positive outcomes, where technology is used as a tool for supporting more productive and engaging STEAM learning experiences.



Real World Application

THE GLOBAL DRONE MARKET TO BE WORTH \$127 BILLION BY 2020

IN ADDITION TO DEFENSE, DELIVERY, OR AERIAL PHOTOGRAPHY, DRONES WILL SOON BE USED FOR VERIFYING BUSINESS CLAIMS, BOOSTING CROP YIELDS, AND CREATING SPECIAL EFFECTS FOR HOLLYWOOD BLOCKBUSTERS.

\$1.9 BILLION IN VENTURE CAPITAL IN DRONE RELATED START-UPS

THE AVERAGE VALUATION OF THESE START-UPS IS \$5.3 MILLION, AND THE THREE MOST FOLLOWED START-UPS ARE COMMERCIAL LOGISTICS FIRM SKYCATCH, CLOUD-BASED DRONE MAPPING AND ANALYTICS FIRM DRONEDEPLOY, AND SMART DRONE MAKER MATTERNET.

PROGRAMMERS ARE IN HIGH DEMAND

71% OF ALL NEW STEAM JOBS ARE IN COMPUTING, YET ONLY 8% OF STEAM GRADUATES ARE EMPLOYED IN COMPUTER SCIENCE. LEARNING TO CODE WILL INCREASE STUDENTS ODDS OF SECURING A LUCRATIVE STEM CAREER. IN A WORLD WHERE COMPUTING JOBS ARE GROWING AT OVER TWICE THE NATIONAL AVERAGE, CODING HAS QUICKLY BECOME A VITAL SKILL.

IMPROVES CREATIVITY

CODING EMPOWERS KIDS TO NOT ONLY CONSUME DIGITAL MEDIA AND TECHNOLOGY, BUT TO CREATE IT. INSTEAD OF SIMPLY PLAYING A VIDEO GAME OR USING AN APP, THEY CAN IMAGINE MAKING THEIR OWN VIDEO GAME, OR ENVISION WHAT THEIR OWN WEBSITE, OR APP MIGHT LOOK LIKE.

IMPROVES PROBLEM SOLVING

WHEN KIDS CODE, THEY TAKE COMPLEX PROBLEMS AND BREAK THEM DOWN INTO SMALLER PARTS. KIDS LEARN WHAT IT'S LIKE TO APPROACH A PROBLEM THE WAY A SOFTWARE ENGINEER DOES, WITH LOGICAL, COMPUTATIONAL THINKING.

COLLABORATION & COMMUNICATION

STUDENTS ARE CHALLENGED TO COLLABORATE AND CLEARLY COMMUNICATE COMPLEX IDEAS WITH PEERS WHO ARE JOINED BY THROUGH A COMMON INTEREST IN TECHNOLOGY. PEOPLE WHO CAN PROBLEM-SOLVE WITH OTHERS TEND TO BE SUCCESSFUL IN THE TECH INDUSTRY.

Drones

Extremely lightweight:

This incredibly small drone fits in your palm and only weighs approximately 80g (propellers and battery included). However, its durable design combined with DJI's flight technologies ensure that you can always fly with confidence. Just grab it from your bag and have fun.

Safe to fly indoors:

Tello is super safe with its software and hardware protections. With a single tap, it can takeoff/land automatically; its vision positioning system facilitates precise hovering; when the battery gets low, alerts will go off. Moreover, even if you lose the connection, the Tello can still land safely thanks to its failsafe protection. Tello's high-capacity battery offers an impressively long flight time, giving it one of the longest flight times in the mini-drone category.

Programmable:

You can learn the basics of programming while having fun. By using Droneblocks or Python coding system, you will be able to program your own flight patterns with the Tello. If you're a more advanced user, you can use the Tello SDK to develop software applications. You will find Tello the smallest yet smartest drone you'll ever fly.

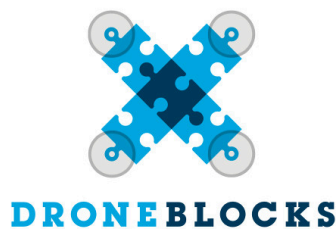


Droneblocks (Block-Coding)

Droneblocks is available on iOS, Android, and Google Chrome. This will allow you to utilize virtually any existing device whether it be a tablet or laptop. With over 100,000 users around the globe there are now support communities on various social media forums which are also available for free.



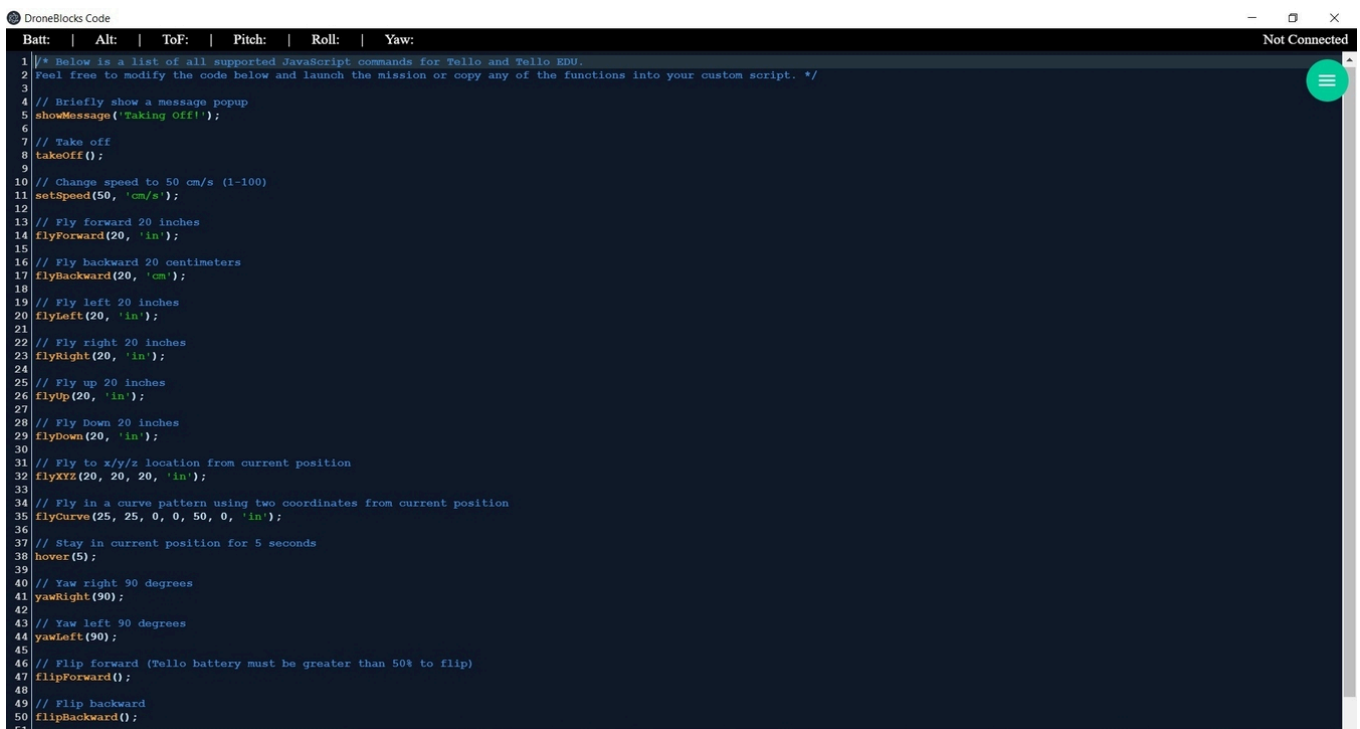
**Scan to Download
Droneblocks App**



Droneblocks Code

Membership Exclusive

DroneBlocks Code is available on PC and Mac. DroneBlocks Code is for advanced users that have moved beyond block coding. Now program your Tello and Tello EDU using JavaScript and more advanced programming techniques.



```
Batt: | Alt: | ToF: | Pitch: | Roll: | Yaw:
Not Connected

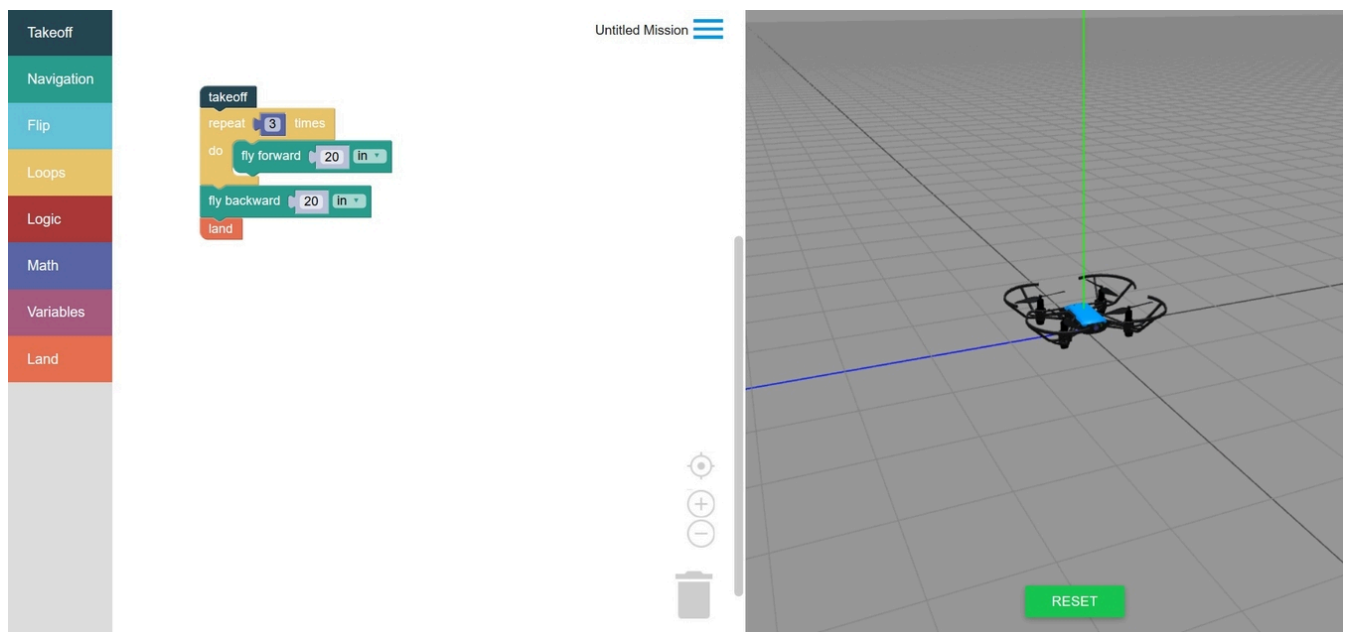
1 /* Below is a list of all supported JavaScript commands for Tello and Tello EDU.
2 Feel free to modify the code below and launch the mission or copy any of the functions into your custom script. */
3
4 // Briefly show a message popup
5 showMessage('Taking Off!');
6
7 // Take off
8 takeOff();
9
10 // Change speed to 50 cm/s (1-100)
11 setSpeed(50, 'cm/s');
12
13 // Fly forward 20 inches
14 flyForward(20, 'in');
15
16 // Fly backward 20 centimeters
17 flyBackward(20, 'cm');
18
19 // Fly left 20 inches
20 flyLeft(20, 'in');
21
22 // Fly right 20 inches
23 flyRight(20, 'in');
24
25 // Fly up 20 inches
26 flyUp(20, 'in');
27
28 // Fly Down 20 inches
29 flyDown(20, 'in');
30
31 // Fly to x/y/z location from current position
32 flyXYZ(20, 20, 20, 'in');
33
34 // Fly in a curve pattern using two coordinates from current position
35 flyCurve(25, 25, 0, 0, 50, 0, 'in');
36
37 // Stay in current position for 5 seconds
38 hover(5);
39
40 // Yaw right 90 degrees
41 yawRight(90);
42
43 // Yaw left 90 degrees
44 yawLeft(90);
45
46 // Flip forward (Tello battery must be greater than 50% to flip)
47 flipForward();
48
49 // Flip backward
50 flipBackward();
51
```

Contact us for a Private Demo

Drone Simulator

Membership Exclusive

Explore DroneBlocks coding without a drone from anywhere! Compatible with all DroneBlocks block coding curriculum. Excellent resource for distance learning and environments where flying drones is not suitable.



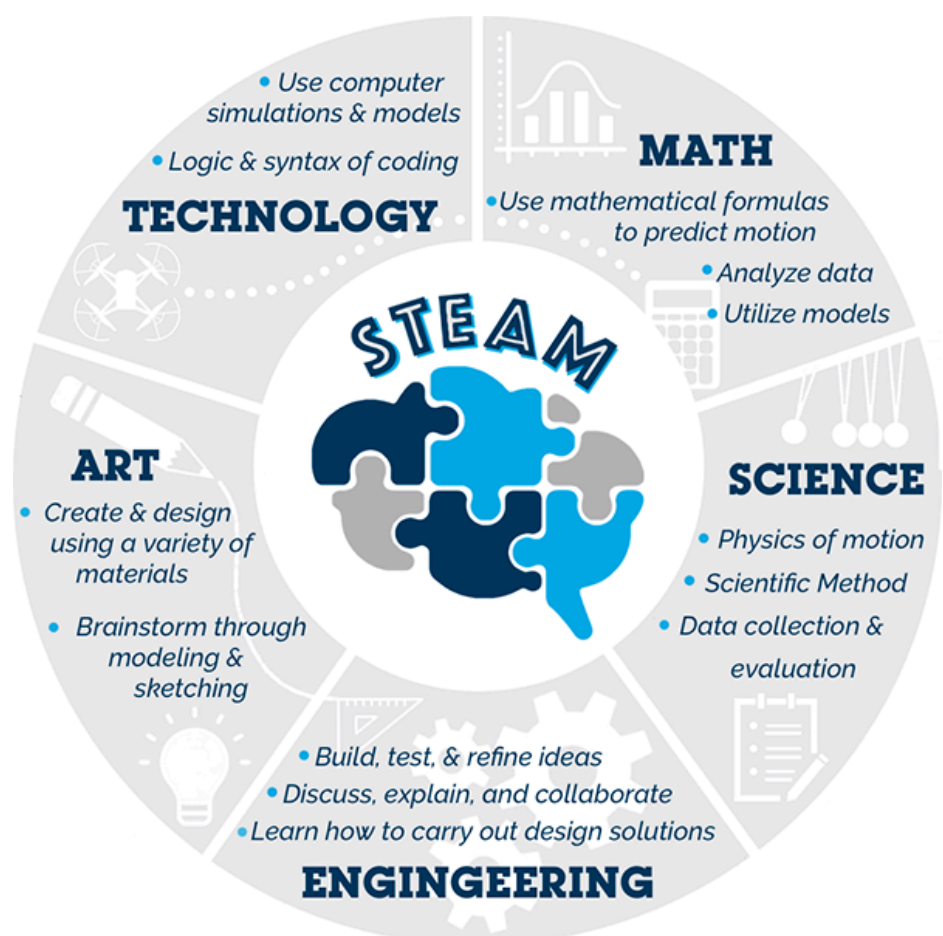
Contact us for a Private Demo

Curriculum

Curriculum is an important part of the DroneBlocks experience. While the DroneBlocks app is a blank canvas for programming autonomous flight, we also provide in-depth curriculum that guides users through all aspects of responsible drone use. Our curriculum covers safety, regulations, and the real-world applications of drone technology. We offer various courses that demonstrate what can be done the powerful Tello and Tello EDU micro drones.


Coding Languages to Learn

- **Droneblocks (Block-Coding)**
- **Python**
- **Node-JS**
- **JavaScript**





Key Advantages

- 75+ Cloud Based Lessons and videos
- Clear lessons that build upon each skill introduced
- DroneBlocks lessons are aligned to include universal education standards, including CCSS, NCTM, TEKS, NGSS, and ISTE
- True STEM/STEAM applications across all subjects
- Open Source – Dynamic Block Based Coding engaging coding learners of all ages
- Compatible on iOS, Android, & Chrome
- Collaborative: we encourage & incorporate feedback from students, teachers & developers
- Compatible with more advanced and powerful drones





OpenCV, Python, and DroneBlocks for Tello Camera Control
Take photos and record video with Tello

 Dennis Baldwin




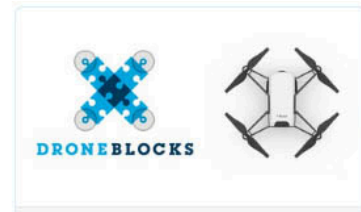
Tello & Art Presents: Dance
This series of curriculum showcases the 'A' in STEAM, using DroneBlocks and Ryze Tello drones to promot...

 Marisa Vickery




Introduction to Tello EDU Drone Programming with DroneBlocks

 Marisa Vickery



Introduction to Tello Drone Programming
Learn Fundamental Programming Concepts & Watch Tello Fly!

 Dennis Baldwin



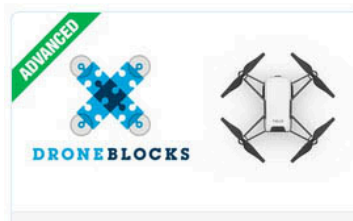
Tello Drone Programming with Python - Video Course
Go beyond block programming with Tello using Python

 Dennis Baldwin




Node-RED Programming with Tello and Tello EDU
Learn the ins and outs of flow based drone programming

 Dennis Baldwin



Advanced Tello Programming with DroneBlocks
Extend Your Programming Knowledge with Equations and 3D Flight

 Dennis Baldwin



Introduction to JavaScript Programming with DroneBlocks Code
DroneBlocks Code is for advanced users that have moved beyond block coding. Program your drone...

 Dennis Baldwin

Professional Development

Our one on one sessions are there to assist educators, walk through curriculum, and build user confidence. With the use of brain-based learning and coaching models we create positive outcomes across education and professional development communities, where technology is used as a tool for supporting more productive and engaging STEAM learning experiences.

Virtual Sessions hosted by our Microsoft Global Training partners prepare educators from all skill levels on facilitating a class with drones. Educators will learn the ins and outs of the drone technology from capabilities to troubleshooting techniques to ensure as little downtime as possible during class. Courses are available in 2 hours blocks, more time means more detail, practice, and time for questions.

Topics include:

- What are the educators needs?
- Updating the drone & troubleshooting
- Connection & flights
- Block coding & introduction to DroneBlocks
- Introduction to edu.droneblocks.io
- Simple & Complex flight plans
- Application using Python



Universal Standards

At DroneBlocks we understand that each province, region or school district adhere to a variety of skills and standards that are required to guide student learning. To best administer this array of standards, we have developed a universal indicator of the standards practiced throughout the DroneBlocks lessons. Skills developed in our lessons are summarized below to provide support for all educators (whether using CCSS, NCTM, TEKS, NGSS, ISTE, or other curriculum standards). We understand that you, the educator, are the professional in knowing which skills align with the lessons you teach.

SCIENCE

- Understand that force acts on an object and includes strength and direction, causing the object to move.
- Objects that appear to not be moving have multiple forces compiling to create zero force on the object.
- The motion of an object can be observed and measured.
- Investigate and test solutions to solve each challenge efficiently.
- Synthesize information from a variety of sources.
- Evaluate solutions, taking into consideration safety, reliability and impact.
- Observe, question, collect and evaluate data.

TECHNOLOGY

- Technology can be created and improved by the interconnection of Science, Mathematics, and Engineering.
- Utilize a variety of technology and resources to better understand concepts and solve problems.
- Develop comprehension of the logic and syntax that goes into building or coding a program through engaging in and elaborating upon activities.
- Simulate solutions to real-world problems using models and/or computer simulation.
- Program variables that represent quantities in mathematical problems.

- Write conditional expressions to create program logic using if-else statements.

ENGINEERING

- Improve and optimize results by identifying errors and using mathematics and technology to redesign and solve problems.
- Evaluate, use prior knowledge such as scientific processes and real-world problems, and troubleshoot to develop a solution.
- Discuss, explain, and collaborate to improve a product through iteration.
- Design a device that converts one form of energy into another by building, testing, and refining. Determine the best solution to accomplish a given challenge.
- Plan and carry out investigations and gain feedback through design process (design solutions).
- Construct arguments that provide a convincing explanation of solutions created through programming.

ART

- Make, design, and create using a variety of materials to develop a concept or learning experience.
- Brainstorm ideas through modeling and sketching.
- Compile works of art to relate knowledge.

MATHEMATICS

- Measure distances, width, length and speed to gain data for interpretation and refining engineering and design.
- Integrate data analysis to collaborate and gain feedback.
- Solve mathematical problems with numbers in any form, strategically using applicable tools.
- Determine the probability of events and compare data from observed models. Explore and evaluate possible reasoning for discrepancies between models.
- Observe an object's motion, providing data and evidence to evaluate and predict future motion.
- Develop and expand knowledge of geometry, understanding the concepts of measuring angles, and geometric constructions.
- Understand how variables can be used to represent quantities in a real-world or mathematical problems.