



# Curriculum Scope, Sequence, and Standards Alignment



## Lesson 1: Flight Training



Students learn about drones, the basic principles of flight, and practice flight skills while aiding in emergency relief efforts after a hurricane in Puerto Rico.

Subject	Standard Alignment
NGSS	<b>4-PS3-1</b>
Common Core Math	<b>CCSS.MATH.CONTENT.4.MD.C.5.B</b>
Common Core Literacy	<b>CCSS.ELA-LITERACY.SL.4.1, 5.1, 8.1, 4.2, 5.2, 6.2, RI 4.4, W.4.4, 5.4, 6.4</b>
CSTA	<b>1B-CS-02, 1B-CS-03, 1B-IC-18</b>
ISTE	<b>1d, 2b, 7c</b>

## Lesson 2: Fighting Fires



Students learn how to use automatic drone flight modes. They also learn about fighting forest fires using controlled burns. They use the flipping mode to create a controlled burn and stop a forest fire.

Subject	Standard Alignment
NGSS	<b>3-PS2-2, 5-ESS3-1</b>
Common Core Math	<b>CCSS.MATH.CONTENT.3.MD.B.4, 6.SP.B.5.C</b>
Common Core Literacy	<b>CCSS.ELA-LITERACY.RI.4.4, W.4.4/5.4/6.4</b>
CSTA	<b>1B-CS-02, 1B-CS-03, 1B-IC-18</b>
ISTE	<b>2b, 3d, 7c</b>

## Lesson 3: Erebus Expedition



Students learn how to create a sequence of commands to give to a peer, then they create a sequence of commands to give to the drone using code. They learn about fumaroles on Mount Erebus in Antarctica and map the fumaroles using measurements obtained with the drone.

Subject	Standard Alignment
NGSS	<b>4-ESS2-2</b>
Common Core Math	<b>3.MD.B.4, 3.NBT.A.2, 3.OA.D.8, 4.MD.A.1, 4.MD.A.2, 4.NBT.B.4, 4.OA.A.3, 5.MD.A, 5.MD.A.1, CCSS.MATH.PRACTICE.MP4, MP6</b>
Common Core Literacy	<b>SL.4.1, 5.1, 6.1, 4.2, 5.2, 6.2, RI.4.4/5.4/6.4, 5.3, W.4.4/5.4/6.4</b>
CSTA	<b>1B-AP-10, 1B-AP-13, 1B-AP-15</b>
ISTE	<b>1d, 3d, 4d</b>

## Lesson 4: Shark Watch



Students learn how to use loops in a coded sequence to repeat a portion of the code. They also learn about how drones are used to detect and prevent sharks from attacking swimmers near coastlines.

Subject	Standard Alignment
NGSS	<b>3-5-ETS1-2</b>
Common Core Math	<b>CCSS.MATH.CONTENT.5.MD.A.1, 4.NBT.B.6</b>
Common Core Literacy	<b>CCSS.ELA-LITERACY.SL.4.1, 5.1, 6.1, 4.2, 5.2, 6.2, RI.4.4/5.4/6.4, 5.3, W.4.4/5.4/6.4</b>
CSTA	<b>1B-AP-08, 1B-AP-10, 1B-AP-11, 1B-AP-12</b>
ISTE	<b>3d, 5c, 7c</b>

## Lesson 5: Medicine Delivery



Students use the engineering design process to deliver medicine through obstacles to a remote village in Rwanda. They both fly and code the mission.

Subject	Standard Alignment
NGSS	<b>3-5-ETS1-3</b>
Common Core Math	—
Common Core Literacy	<b>CCSS.ELA-LITERACY.SL.4.1, 5.1, 6.1, RI.4.3, 4.4, W.4.4, 5.4, 6.4</b>
CSTA	<b>1B-AP-08, 1B-AP-11, 1B-AP-13, 1B-IC-18</b>
ISTE	<b>4a, 4c, 4d</b>

## Lesson 6: Helper Bees



Students learn about the declining bee population and then use drones to help build programs to pollinate flowers. Students learn about 3D coordinates and use coordinates to make the drone pollinate the flowers.

Subject	Standard Alignment
NGSS	<b>4-LS1-1, 5-ESS3-1</b>
Common Core Math	<b>CCSS.MATH.CONTENT.3.MD.B.4, 5.G.A.1, 5.G.A.2, CCSS.MATH.PRACTICE.MP1</b>
Common Core Literacy	<b>CCSS.ELA-LITERACY.RI.4.4, 5.3, W.4.4, 5.4, 6.4</b>
CSTA	<b>1B-AP-12, 1B-AP-16, 1B-IC-18</b>
ISTE	<b>4a, 5c, 7c</b>

## Lesson 7: Drone Racing



Students design and build a drone racing course with their team. They work together as a class to build and fly a big obstacle course, then work as a small team to code their drone's flight path through their obstacle.

Subject	Standard Alignment
NGSS	<b>3-PS2-1</b>
Common Core Math	<b>CCSS.MATH.CONTENT.3.MD.B.4, 4.MD.A.2, 5.MD.A.1</b>
Common Core Literacy	<b>CCSS.ELA-LITERACY.RI.4.4, 5.3, W.4.4, 5.4, 6.4</b>
CSTA	<b>1B-AP-10, 1B-AP-11, 1B-AP-16</b>
ISTE	<b>4d, 7c</b>

## Lesson 8: Mission to Mars



Students take their drones to Mars where they scan craters for signs of extraterrestrial life. They refactor their code using functions.

Subject	Standard Alignment
NGSS	<b>5-PS2-1</b>
Common Core Math	<b>CCSS.MATH.CONTENT.3.MD.B.4, 4.MD.A.2, 5.MD.A.1</b>
Common Core Literacy	<b>CCSS.ELA-LITERACY.RI.4.4, 5.3, W.4.4, 5.4, 6.4</b>
CSTA	<b>1B-AP-08, 1B-AP-10, 1B-AP-11, 1B-AP-12</b>
ISTE	<b>4a, 5c, 7c</b>

## Lesson 9: Koala Care



Students use their drones to gather information about koalas and then create a video to raise awareness about koala's habitat destruction.

Subject	Standard Alignment
NGSS	<b>5-ESS3-1, 3-5-ETS1-3</b>
Common Core Math	—
Common Core Literacy	<b>CCSS.ELA-LITERACY.W.4.4, 5.4, 6.4, .4.5, 5.5, 6.5, .4.6, 5.6, 6.6, 4.7, 5.7, 6.7, RI.4.4, 5.4, 6.4, 5.9</b>
CSTA	<b>1B-AP-13, 1B-AP-16, 1B-IC-18</b>
ISTE	<b>1a, 1b, 7a</b>

## Lesson 10: Video Production



Students use editing software to edit their video and turn it into a final product that will be shown at graduation.

Subject	Standard Alignment
NGSS	<b>5-ESS3-1, 3-5-ETS1-3</b>
Common Core Math	—
Common Core Literacy	<b>CCSS.ELA-LITERACY.W.4.4, 5.4, 6.4, .4.5, 5.5, 6.5, .4.7, 5.7, 6.7, 4.8, 5.8, RI.4.5, 4.9</b>
CSTA	<b>1B-AP-13, 1B-AP-16, 1B-IC-18</b>
ISTE	<b>1a, 1b, 7a</b>