Drones Hands-On Activity

Often when a natural disaster occurs, it is difficult for first responders and government officials who have evacuated to know what has happened to their town in the hours, and sometimes days, following. Luckily, the rise and development of drone technology allows first responders and government officials to see the damage even when access to their town by foot or by car is not possible. In this activity, your students will learn how drone technology can help assess damage after a natural disaster occurs.

Materials:

1. Natural Disaster Worksheet (below)
2. Materials with which to build a diorama-type village. Ahead of time, brainstorm with students on different materials that could be used. Some examples:
   - Paper
   - Books
   - Pens/pencils
   - Lego blocks
   - Lincoln logs
   - Paper clips
   - Polystyrene
   - Florist foam
3. Video recording device (smartphone, point-and-shoot camera, etc.) to act as “drone”
4. Cardboard box for each group that is large enough for them to build their small village using materials decided upon ahead of time.

Note: Some items to think about including when planning your villages:

- Bridges
- Poles (streetlights/electric wire poles)
- Pond
- People
- Pets
- Buildings (hospitals, schools, homes, apartment buildings, sporting arenas, etc.)
- Transportation (cars, trucks, busses, trains, etc.)
- Benches
- Railroads
- Landscaping (trees, bushes, flowers, plants, etc.)
- Trash cans (public/belonging to homes)
- Power plant
- Roads/sidewalks
- Boats
- And more! Have students brainstorm in their groups or as a class ahead of time to embrace creativity and collaboration!
Procedure:

A few days before the activity:

1. Divide students into groups of 4 or 5. Groups will be the “government” for a village.
2. Assign a natural disaster (earthquake, tornado, tsunami, etc.) to each group and instruct them to come up with a list of the types of damage that might result from their natural disaster. Make sure it is on a single sheet of paper, see worksheet below. Collect each groups’ worksheet.
3. Redistribute the worksheets, making sure each group gets a different natural disaster than they were assigned.
4. Instruct the students to coordinate with each other to obtain materials needed to build their village, and also possibly to inflict damage.

On the day of the activity:

1. Instruct each group to construct a small village inside their cardboard box using the materials they brought. Students should label the objects in their village (buildings, structures, bodies of water, etc.) on a separate sheet of paper, see page 4.
2. Once each group has constructed its village, take photos of each village for later reference.
3. Pair each group with another (group 1 with group 3, group 2 with group 4, for example).
4. Each group will then go to the village of the group they were paired with and inflict the kind of damage that is listed on their worksheet. Depending on the time available in class, have your students inflict the damage in a specific amount of time.
5. Once all damage is inflicted, and before students go back to their own villages, go around and take photos of the damage to each village for reference.
6. Now it’s time for the students to return to their own villages and assess the damage. The students are only allowed to use video captured by their “drones” (video camera or smartphone) to assess the damage. Students are not allowed to look directly into the box. Have the students “fly” their drone around their village to record video of the damage.
7. Each government should then sit down and watch the footage together to assess what was damaged, and how badly. If time permits, once all groups have assessed the damage to their village, open up discussion between the groups.

Discussion topics:

- The importance of drone technology in the assessment of damage after a natural disaster.
- Ask students to think of ways that people may improve this technology.
- What are some drawbacks with drone technology?
- What can/can’t governments do to help communities that suffer from a natural disaster?
Natural Disaster

Types of damage that can be caused:

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A - Light post
B - Duck/animal
C - Citizen
D - Fire hydrant
E - Apartment building
F - Car
G - Duck/animal
H - Pool/pond
I - Citizen
J - Duck/animal
K - Townhouse
L - Electrical Wire