

SHOULD WE SWIM? AN EXAMINATION ON THE SAFETY OF OUR WATERWAYS



About this product:

The following are guided notes for the sample videos correlating from the Hook and Lesson 1 of “Should we Swim? An Examinations on the Safety of our Waterways.”

Who should use this: science teacher, computer teacher, arts teacher

These videos and notes can be used in any order or with any videos unused at teacher discretion and dependent upon the lesson.

What it contains:

Each page is a 1/2 sheet that can easily fit into an interactive notebook, or cut in half. It should be used as guided notes for each of the corresponding videos on this webpage:

<http://www.citadelstemcenter.org/lesson-1-capturing-images.html>

The Key is provided on the last page for EACH of the guided notes with the corresponding titles.

How Drones Work

- UAV- Unmanned _____ Vehicles

- Regulations for drones are from the FAA or Federal _____ Administration

- To get certified as a drone pilot, one must take the _____ test or The Recreational UAS Safety Test.

- What is the highest height from which a person can fly their drone from where they've launched?
- Items that Drones can collect:
 - a. video
 - b. High Resolution still images
 - c. Light-dar
 - d. _____ -seeking or "flier"

- Citadel uses of drones
 - a. monitor large crowds
 - b. _____ for large events
 - c. track a suspect
 - d. active shooter spotting

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Types of Drones

_____ Drones- drones that anyone can fly

Law enforcement drones- geared towards needs of first _____ and law enforcers

- _____ got lost, but they found them with a flier or heat-seeking camera

- Night _____ Camera- low-light situations
 - Mydar- _____-based system used for mapping
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Military use of drones

- _____- tiny drone to fit into a soldiers pocket for surveillance
- Large plane-like drone- miles away piloting of an aircraft.

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Drones in Forensics

Crime Scene photography- Drones Usage

1. Safety
2. Get to _____ areas
3. Document without _____
area
4. Search and _____
 - a. quick action
 - b. wide area
 - c. dropping _____ devices

Forensic Photography

- a. no damaging _____
- b. untouched- no new DNA
- c. clear a _____ - create a
safer environment

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Camera is Like an Eye

History: Camera _____ wanted to flatten a scene to 2D

Cameras have a shutter which is like an _____

A shutter can move slow or fast which will determine how _____ the image portrays

Fast shutter- clear image

Slow Shutter- blurred or unmoving image

Lens helps to focus an image like contact lenses or _____

Aperture is a pupil: an opening to let _____ in.

Aperture results in _____ of field which correlates to which item is in focus.

Sensitive Sensor is the _____ of the eye- receive or hold onto the visual data

ISO measures light exposure-

mistakes:

blown out is when _____ is lost due too improper ISO measurement

noise is when the ISO sensor is too _____.

Exposure Triangle is made up of : Shutter Speed, ISO and Aperture

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Visual Elements in Photography

Choices to Emphasize Perspectives

Tell a _____ through the image

Line- building block of art

The rule of thirds- composition

Leading Line- eyes _____ a line

Shapes- a bounded _____ defined in your
photography

Form- take a shape and make it three dimensional

Use light, _____ of object

Space- the feeling of _____ within the
photograph

foreground, middle ground, background

Color- use of variety or lack of variety

Value and Light- how light or _____ something is

How can light become captured in your
photographs?

Texture- The raking light to highlight

_____ pieces of the 2D image

Use this vocabulary when critiquing an image.

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Microplastics in the Environment (A)

What are micro plastics? Tiny pieces of plastic, less than _____ mm in size

Types of Microplastics

- a. pre-production _____ (formerly)
used in facial scrubs
- b. Breakage from larger plastics
- c. Laundry- fabrics are plastics: polyesters, nylon, _____

Plastic Human Litter

How long does it take? A long time (normally)

Process of breaking down: Sunlight hits plastic materials, which allows the plastic to become _____ and breakage occurs

In the open ocean, it takes roughly _____ years, but in coastal waters, lakes and rivers with lots of sunlight, _____ temperatures, and lots of oxygen it might take _____ years

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Microplastics in the Environment (B)

Can micro plastics harm humans? Not _____

What about microplastics harming animals and ecosystem's food chains?

Yes, microplastics have _____ the food chain ecosystems.

Americans are eating roughly _____ thousand micro plastics

Potentially Harming Humans

The smallest of the small can pass through the gut into the _____ stream and **NOW** have access to liver, kidneys heart and _____

Plastics in the bloodstream may cause swelling and allow pre-existing conditions to become much worse.

Microplastics can carry harmful _____ on its surfaces.

What is a solution that an individual do? Pick up litter while walking, when in a business say _____ to plastic utensils.

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How Drones Work key

1. Aerial
2. Aviation
3. TRUST
4. 400
5. heat
6. parking

Types of Drones key

1. Domestic
2. responders
3. hiker
4. vision
5. laser
6. Dragonfly

Drones in Forensics key

1. Advantages
2. inaccessible
3. rescue
4. floatation
5. evidence
6. building

Camera is like an eye KEY

1. Obscura
2. eyelid
3. sharp
4. glasses
5. light
6. depth
7. retina
8. detail
9. sensitive

Visual Elements in Photography key

1. story
2. follow
3. space
4. movement
5. distance
6. dark
7. tactile

Microplastics in the Environment 1 Key

A

1. 5
2. pellets
3. spandex
4. fragile
5. 450
6. warmer
7. 2- 3

B

8. Likely
9. entered
10. 40- 50
11. blood
12. brain
13. bacteria
14. NO