

## **TECHNOLOGY-12/13**

### **SELECTIVE UNIT 3 (S03)**

(Digital Mapping and Geocaching)  
(July 2017)

**Unit Statement:** The student will learn how to effectively use a digital map and GPS in the context of everyday life and geocaching. The student will work together with other students in order to create geocaching sites across their school for use by future classes. They will also look at the advantages of digital maps vs paper maps and the current limitations of the technology.

**Essential Outcomes:** (must be assessed for mastery)

1. **The Student Will** compare a paper map and a digital map, a real compass and a digital compass.
2. **TSW** use a GPS enabled device to find the coordinates and the altitude of a specific location.
3. **TSW** identify locations on a digital map.
4. **TSW** use a GPS enabled device to find a geocache or a hidden object/landmark.
5. **TSW** place a geocache and document it for future students or create a map using GPS locations.
6. **TSW** discuss the current limitation of GPS.

#### **Suggested Materials:**

GPS enabled devices such as smartphones, smartwatches, tablets, laptops, car GPS.

#### **Suggested Websites/Apps:**

TSW 1, 2, 3: Google Maps – the most versatile digital map. You can also download the app.

<https://maps.google.com/>

An alternate map app.

<http://maps.me/en/home>

Note: Depending on your country, other digital map services may work better.

TSW 4 and 5: Geocaching apps

<https://www.geocaching.com/play>

<https://itunes.apple.com/us/app/geocaching/id329541503?mt=8>

<https://play.google.com/store/apps/details?id=com.groundspeak.geocaching.intro>

A guide to geocaching.

<https://www.geocaching.com/guide/>

### **Suggested Activities**

TSW 1 and 2: Have students try to navigate to a location using a traditional compass and paper map and then try it again with a digital map and digital compass.

TSW 1-3: Students will design and play a Frisbee golf course using GPS and a digital map.

TSW 1-3, 6: Students imagine that they are dropped off at a random location. All they have is their GPS enabled and must figure out how to make their way home.

TSW 1-3: Students will map a trail not on google maps. Or map their school.

TSW 1-3: Create a map of your neighborhood showing places of interest that would be useful to people new to the city.

TSW 4-5: Students will participate in a geocaching activity to find an object already hidden by the teacher. They will then create their own geocache for future classes to search for.

TSW 6: In a round table discussion/report/presentation, students will discuss what are the current limitation of GPS and how it can be improved in the future.

*ASSESSMENT RUBRIC FOUND ON FOLLOWING PAGE.....*

**Assessment Rubric – S03 – Digital Mapping and Geocaching**

**Student Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**To receive a ‘B’ the student must show ‘B’ level mastery on ALL Essential Outcomes. (TSW’s)  
To receive an ‘A’, the student must show ‘A’ level mastery on 3 available and ‘B’ level mastery on all remaining TSW’s.**

<b>TSW</b>	<b>‘A’ Level Mastery</b>	<b>‘B’ Level Mastery</b>	<b>‘P’ Comments</b>
<b>1. The Student Will</b> compare a paper map and a digital map, a real compass and a digital compass.	Discuss in detail the advantages and disadvantages of paper/digital maps and real/digital compasses.	Briefly discuss the advantages and disadvantages of paper/digital maps and real/digital compasses.	
<b>2. TSW</b> use a GPS enabled device to find the coordinates and the altitude of a specific location.	Use various GPS enabled device (ios, android)) to find the coordinates and the altitude of a specific location.	Use a GPS enabled device to find the coordinates and the altitude of a specific location.	
<b>3. TSW</b> identify locations on a digital map.		Identify locations on a digital map.	
<b>4. TSW</b> use a GPS enabled device to find a geocache or a hidden object/landmark.		Use a GPS enabled device to find a geocache or a hidden object/landmark.	
<b>5. TSW</b> place a geocache and document it for future students or create a map using GPS locations.	Place a geocache and document it for future students and create a map using GPS locations.	Place a geocache and document it for future students or create a map using GPS locations.	
<b>6. TSW</b> discuss the current limitation of GPS.	Discuss the current limitation of GPS and predict how these limitations may be solved in the future.	Discuss the current limitation of GPS.	