

# GPS Units in Physical Education: Finding the “Hidden Treasure”



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**Session Description:** This activity-based session, designed for the middle and secondary physical educator, will introduce the participant to using GPS technology during physical education classes. Instruction on the basics of using the GPS unit will be provided during the session, as well as teaching strategies and assessments for familiarizing students with how to use the units. A progression of activities for introducing these units to students and ideas for hosting a family night will be shared. Results of a GPS pilot study involving third through eighth graders will also be discussed. The session will end with an Adventure Race, similar to geocaching, around the Tampa convention area. During the Adventure Race, participants will be introduced to suggested ideas for using digital photography as an option for assessment.

### **Cardinal Scramble**

**Purpose:** To familiarize students with the cardinal directions (North, South, East, West)

**Equipment:** Hula hoops, cones or polyspots, several sets of signs with cardinal directions (North, South, East, West)

**Group size:** 3 to 4

**Description:**

- Each group gets 1 hula hoop and 4 polyspots or cones with cardinal directions (NESW)
- Group is to set up a “compass” using this equipment and their GPS units to locate the correct cardinal direction

### **The Run Around**

**Purpose:** This activity is designed to follow the Cardinal Scramble to further familiarize students with how to use the GPS unit to read cardinal directions.

**Equipment:** GPS Units

**Group size:** Individual or Pairs depending on number of GPS units

**Description:**

- Teachers call out various directions (north, east, southwest, etc) and students are to use the GPS units and move in those directions.
- Teacher can vary the locomotor skill students use of move from location to location.

### ***Waypoint Wander***

Purpose: The purpose of this activity to teach students how to correctly identify waypoints using the GPS unit.

Equipment: GPS units, pencils, worksheets, cones

Group Size: 2-5 (depends on number of available units)

Description:

- Prior to class, set up a number of cones in the activity area. Be sure to determine and record the waypoints for each cone. (It is best to use different colored cones. If different colored cones are not available, name or number the cones so students can differentiate between the cones.)
- Prepare a worksheet identifying the cones, including a place for students to write down waypoints for the cones.
- Instead of cones, students could be given a list of objects/landmarks to find and identify waypoints.
- Once students have found all items on the list, have them check their answers.

### ***Which Way Did They Go?***

Purpose: The purpose of the first portion activity is for students to learn to mark waypoints using their GPS units. The second portion of the activity provides students with practice for finding waypoints that have been marked in their GPS units.

Equipment: Large cones, worksheets, pencils GPS units

Group size: 3-5 depending on number of GPS units

Description:

- Prior to class, pre-set two sets of 5 large cones
- Each group gets a group worksheet and pencil
- Before starting, each group needs to clear their odometer/waypoints from the GPS
- Start each group at a different cone color
- Groups move from cone to cone in any order—marking waypoints with a 1, 2, 3, 4, 5
- On the worksheet that is to become the answer sheet, they are to identify the order in which they visited the cones.
- Once they return, have them record odometer info and turn their worksheet in to the teacher. Both worksheets need to have the group name written on them. One is the answer key and the other is the worksheet for the group that will follow their path.
- Groups (from two different cone groups) switch GPS units. The groups then try to determine which order the other group visited the cones by using the 1, 2, 3, 4, 5 on GPS. (The cones either need to be different colors or have different names. Do not number the cones—it gets to confusing!)
- Have groups check their worksheet against the answer key when they return.
- Example worksheet:

Group Name: \_\_\_\_\_

**WHICH WAY DID THEY GO??**  
(answer sheet)

ORDER CONES VISITED (THIS SHOULD BE THE # YOU IDENTIFY IN THE GPS UNIT FOR THE WAYPOINT)	CONE
	RED
	BLUE
	YELLOW
	ORANGE
	PURPLE

Names of Students in Group: \_\_\_\_\_

**(Cut here before handing out to students)**

**“Which Way Did They Go”**

**Group Creating Path:** \_\_\_\_\_

**Group Following Path:** \_\_\_\_\_

WAYPOINT ORDER	COLOR	Correct (X)	Incorrect (X)
<b>1</b>			
<b>2</b>			
<b>3</b>			
<b>4</b>			
<b>5</b>			

**\*\*When your group returns, check your answers!**

### **Map Maker**

**Purpose:** The purpose of this activity is to provide students with experience of entering and finding waypoints into the GPS units prior to sending them on an actual adventure race or scavenger hunt.

**Equipment:** paper, pencils, some way for each group to mark their three to five locations (flags, cones, cards, etc.)

**Group Size:** 2-5 (depends on number of available units)

**Description:**

- Assign each group a color and/or 3-5 (depends on time) common markers of some type (flag, cone, colored stake, etc.). (Some way of telling the groups waypoint locations apart.)
- Have each group create a course using their GPS units in the area established by the teacher. This course should include 3-5 different destinations.
- At each location, the group should leave a “marker” and record the waypoint on the worksheet .
- Once groups have established a course, they should exchange their worksheets with another group.
- The other group then attempts to find all locations and return with the hidden items and the location where the item was found.
- Example worksheet:

Item	Waypoint	Location Found (Recorded by team finding items)

### **Additional Ideas for Class Activities**

**Purpose:** Once students have become proficient in their use of the GPS units, they are able to successfully participate in a variety of activities. Here is a list of some possible ideas.

- Create a scavenger hunt/adventure race and hide several caches on school grounds for students to find (AKA: Geocaching)
  - Could include review questions or concept information in the caches
  - Could include an exercise for students to do once they find the cache; have students take and record HR at the cache
  - Could include integration questions or a problem-solving activity in caches
  - Could include beads in caches and have students make a bracelet or team “stick” as they go from cache to cache (This way you know students have been to the cache!)
  - Hide puzzle pieces in the cache. Once students get back, they must put the puzzle together.
- Have students/small groups create and hide their own caches
- Have a class (or classes) initiate and track a Travel Bug
- Have students hunt for local caches/benchmarks; have them log find in at [www.geocaching.com](http://www.geocaching.com)

### **Adventure Race Format**

Purpose: The information below may be of help in establishing an adventure race of your own.

- Utilize a checkpoint sheet with photo documentation
- Map of area (school grounds).
- Checkpoints are not listed on map but specified in directions on checkpoint sheet.
- Groups are usually 2-4 in size (heterogeneously grouped).
- Various start formats (shotgun, random, Lemans).
- Introduce Technology: GPS, Step Counter, HR Monitor
- Groups must move with all partners intact.
- Introduce Physical challenges (Roadblocks).
- Introduced Knowledge-based questions from units (fitness, team strategies, etc).
- Relate Project Adventure Problem Solving Skills (A, B, C, D, & E,s)
- Utilize a control letter at each checkpoint, which must then be brought back to be unscrambled (fitness or knowledge related word(s) or phrase).
- Finishes can be based both on time and correctly answered questions.
- Introduce NASPE Standards and National Health Standards during activity and tie in with digital photos of activities.
- Introduce assessment pieces with Adventure Race techniques: Team posters/collages.
- Link directions on checkpoint sheet with desired learning outcomes (if you want understanding of Standard # 1, Basic skills, then have students perform a skill related activity; If you want an understanding of Standard # 2, then have them create a game application which they must perform.)

### **Sample Checkpoint Card**

If GPS is used Waypoints will be given, if not then maps with instructions as to where to go, will be given.

#### **Checkpoint # 2**

##### **Physical Challenge**

You and your teammates must utilize an object from the natural surroundings to create a game all can play (KIS). One person from your group must photograph your game in action.

While playing your game, you took your exercise heart rate and found it to be 95 bpm. Are you in your aerobic zone? Why or why not?

Your next checkpoint can be found at the East end of the football field nearest the concession stand.

Here are your way points for the next checkpoint: