Sustainability Unit Example: 8th Grade Physical Education

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How do curriculum and instruction change when sustainability becomes the guiding approach? How does the content become richer? How does the level of inquiry deepen? This document provides an example of a teacher-created unit that is grounded in the content and pedagogy of sustainability education.

Background

This unit is an outcome of the 2007 Summer Sustainability Institute sponsored by the Children's Environmental Literacy Foundation (CELF: http://www.celfoundation.org), with facilitation provided by Creative Change Educational Solutions (http://www.creativechange.net), and Scott Beall consulting. During the intensive week-long institute, teachers gained content knowledge, resources and strategies to redesign their approach to curriculum and instruction using the lens of sustainability. Guided planning time and one-on-one mentoring at the institute enabled teachers to walk away with a draft unit plan to implement during the school year.

After the institute, the teachers were provided on-going support and communication. Teachers sent their in-progress lesson plans to Creative Change and CELF, and received feedback and mentoring via phone and e-mail. This document is an outcome of this process.

Challenge Unit 4-Day Mini Unit: Challenge & Systems Thinking 8th Grade Physical Education

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Contents

Unit Objectives

Psychomotor:

Students will be able to complete the skills necessary to complete the activities successfully.

Students will be able to complete the skills needed to complete the activity successfully.

Students will be able to practice their loco motor skills during the activity.

Cognitive:

Students will be able to understand the rules of the activities.

Students will be able to understand what systems' thinking involves.

Students will be able to connect what systems' thinking involves and the cooperative activity.

Students will be able to associate with at least one of the ideas from the lesson focus.

Affective:

Students will be able to work cooperatively and assist each other while participating in the games.

Students will be able to work cooperatively and provide each other with constructive feedback.

Students will be able to work cooperatively and provide each other with the help they need to complete the task.

Students will be able to work as partners and guide their partners safely through the maze.

Resources

Booth Sweeny, L. & Meadows, D., The Systems Thinking Play Book.

Hellison, D., Cutforth, N., Kallusky, J., Martinek, T., Parker, M., Stiehl, J. Youth Development & Physical Activity, Linking Universities and Communities. Human Kinetics 2000.

Jones, A. Team-Building Activities foe Every Group. Rec Room Publishing, 1999.

Jones, A. 104 Activities That Build: Self-Esteem, Communication, Anger Management, Self-Discovery, Coping Skills. Rec Room Publishing 1998.

Scope & Sequence

Day 1	Day 2
Intro to Unit Intro to Systems Thinking Activities 123 Go Team Canyoneering Assessment	Review of Systems Thinking Ideas Activities Paper Tower Community Maze Assessment
Day 3	Day 4
The Ways of a System Thinker Activities Cup Stack Stepping Stones Assessment	How will Systems Thinking Relate to Climbing Discussion Activities Toothpick Teaser Light House Assessment

Day 5 – Day 10 See Challenge Unit Plan

Assessment Strategies & Ideas

Students will be completing a daily journal log consisting of the answers from their final debriefing questions. Students will also be encouraged to write any additional comments, concerns or ideas in their journals.

Contingency / Emergency Lesson Ideas

- Crazy Cones
- Three Hit Volley Ball
- Team Score Basketball
- Jail Break
- Over Under Through
- Foot Bridge
- One Body
- Group Transformation
- Human Scavenger Hunt

- Big Shoes

Materials Needed

- Laminated numbers
- Instruction cards
- Tarp
- Map Cards
- Stop Watch
- Cups
- Rubber Bands
- String
- Task Cards
- Carpet Squares
- Toothpicks
- Cones
- Blindfolds
- Hula-hoops
- Wooly balls
- Bowling pins
- Radio
- Music
- Playground balls
- Candy

Lesson Plans

Lesson 1

Date:

Grade: 8

Class size: 24

Facility: Gym C & D

Equipment: Laminated numbers, Instruction cards

Lesson Focus: Students will be able to participate in cooperative games and connect ideas of systems thinking.

Safety: Students must be aware of their personal space boundaries

Standards

Standard 3: Resource Management. Students will understand and be able surroundings to manage their personal and community resources.

Standard 2: Demonstrates understanding of movement concepts principles, strategies, and tactics as they apply to the learning and performance of physical activities.

I. Set Induction:

Today we are going to participate in cooperative activities and connect the activities to systems thinking.

II. Objectives:

Cognitive: Students will be able to understand the rules of the activities.

Affective: Students will be able to work cooperatively and assist each other while participating in the games.

Psychomotor: Students will be able to complete the skills necessary to complete the activities successfully.

III. Lesson Plan Sequence:

Intro and Attendance/ Teacher Directed (3 minutes)

- Students will sit in their floor spots while attendance is being taken.

Lesson Content: Teacher Directed (6 minutes)

- Teacher will explain to the students a few different components of systems thinking.

  Students will be sitting on the floor in scattered formation.

Teacher / Student Directed (6 minutes)

- Students will then stand in circle formation. The activity will be 123 Go. The students will be given the instructions that I will say, "123 Go" slowly. They are only to clap after they hear the word Go. I will then say it in different ways with different cues to make them work together.

Teacher / Student Directed (10 minutes)

- Students will be in circle formation
- Examine our hard wiring "habits". Where else do we have hard wiring responses?
- Power of listening "effective listening"
- When you listen to think systematically you – listen to understand instead of debate – test your own assumptions – reflect in real time –
- Importance of non-verbal communication
- How did your behaviors impact others?
- What are the ways your behavior might send confusion signals to your team partners?
- Would it ever be useful to say one thing while acting as if you want something very different?
- What behaviors helped others and helped you?

Team Canyoneering/ Student Directed (10 minutes)

- Students will be placed in groups of 4. Each group will be given a packet consisting of numbers and instructions. The teacher will read the directions out loud and allow each group 1 minute to think and ask 1 question only. Once the questions have been asked the students will begin the activity.
- Students will be in groups of 4 in scattered formation.

Closure / Debrief/ Student/Teacher (5 minutes)

- Students will return their packets.
- Students sitting in circle formation.
- They will then debrief the activity.
- Then Debrief the class.

Debrief Questions:

1.Was there anything frustrating about the activity? 2. How were you able to work together? 3 .How did you come up with a strategy? 4. What role did each individual have?

Assessment Techniques:

Have students elaborate/reflect on one of their debriefing question in their journals.

Lesson 2

Date:

Grade: 8

Class Size: 24

Facility: Gym C & D

Equipment: Tarp, Map Cards, Stop Watch

Lesson Focus: Students will be able to participate in cooperative games and connect ideas of systems thinking.

Safety Considerations: Students must walk with care on the map grids in order to make sure they do not slip when navigating through map grids.

Standards:

Standard 5: Exhibits responsible personal and social behavior that respects self and others in physical activity settings.

I. Set Induction: Today we are going to participate in cooperative activities that will allow us to see how systems thinking works.

II. Objectives:

Cognitive: Students will be able to understand what systems' thinking involves.

Affective: Students will be able to work cooperatively and provide each other with constructive feedback.

Psychomotor: Students will be able to complete the skills needed to complete the activity successfully.

III. Lesson Plan Sequence:

Intro & Attendance / Teacher Directed (3 minutes)

- Students will sit in their floor spots while attendance is being taken.

Lesson Content / Paper Tower Activity (12 minutes)

- Students will form groups of 4 not all boys, not all girls. Students will be given a task to build a tower as high as they can only using the 10 pieces of paper given to them. They may not use staples, gum, paper clips or any other fasteners. The students will be given 7 minutes to complete the task.

Debrief Questions:

1. What steps did the group take in order to solve this problem? 2. Did everyone contribute? If so, how? If not, why? 3. Did anyone in the group get frustrated at any point? 4. As a member of the team what role did you take on this activity?

Transition into 2nd Activity /Community Maze Activity (15 minutes)

- Students will be broken into 2 groups. Their task is to successfully make it across the maze as a group without talking. One member of the group is the task manager. The students have 2 minutes to plan and 10 minutes to navigate successfully silently. You must decide in advance the sequence the group members will travel. One member of the group is allowed on the maze at a time. If that person chooses the correct square they may proceed to the next square. If they are incorrect the next person in sequence will try. You may not leave any kind of visual trail or use any form of communication.

Debrief Questions:

1. How does the structure of the maze (the physical make-up of the grid, the rules of the game etc.) drive the behaviors exhibited by the players? 2. What patterns of behaviors or events occurs during the game? 3. Were group members in a reactive mode?

Class Debrief/Closure: (5 minutes)

- How can we relate today's activities to everyday life?

Assessment:

Have students answer debrief question in journals.

Lesson 3

Grade: 8

Class Size: 24

Equipment: Cups, Rubber Bands, String, Task Cards, Carpet Squares

Lesson Focus: Students will be able to link systems thinking to the cooperative activities.

Safety Considerations: Students must travel with care when jumping on the carpet squares.

Standards:

Standard 6: Values physical activity for health, enjoyment, challenge, self-expression, and / or social interaction

I. Set Induction: Today we are going to participate in cooperative activities that will enable us to continue building on our systems thinking and trusting skills.

II. Objectives:

Cognitive: Students will be able to connect what systems' thinking involves and the cooperative activity.

Affective: Students will be able to work cooperatively and provide each other with the help they need to complete the task.

Psychomotor: Students will be able to practice their loco motor skills during the activity.

III. Lesson Plan Sequence:

Intro & Attendance / Teacher Directed (3 minutes)

- Students will sit in their floor spots while attendance is being taken.

Lesson Content / Cup Stack (12 minutes)

- Students will form groups of 5 not all boys, not all girls. Students will be given a task to build a pyramid out of 10 cups consisting of 4 levels. The students will have 3 minutes of planning time. Once the 3 minutes is over the students may not speak when stacking the cup. Every group member must hold one of the strings. Once the structure is complete they must disassemble the structure using the same guidelines.

Debrief Questions:

1. Was anyone frustrated at all during this activity? If so how was it handled? 2. Why was teamwork so important for this activity? What are some skills needed to be good at teamwork? What is so hard about teamwork?

Transition into 2nd Activity /Stepping Stones

- Students will be stay in their groups of 5. The students will be informed through a story that they are to get across the gym floor only using the 5 carpet squares given to them. They must get the entire group across the gymnasium and no one may touch the floor. If someone touches the floor the entire group must go back and start from the beginning. Once a group makes it across successfully they can try and go back but this time if they do not have at least 2 feet on a stone while it is on the ground. If they break this rule they may no longer use that stepping stone.

Debrief Questions:

1. What was needed from every group member in order to make this activity successful? 2. Are there ever times in your life when you must rely on others in order to be successful at something? When and what do you do? 3. Is it ever hard for you to ask others for help? Why?

Class Debrief/Closure:

- When should you ask others for help? Do you?

Assessment:

Have students answer debrief question in journals.

Lesson 4

Date:

Grade: 8

Class Size: 24

Equipment: Toothpicks, cones, blindfolds, hula-hoops, wooly balls, bowling pins, radio, music, playground balls, candy

Lesson Focus: Students will be able to link systems thinking ideas such as interdependencies, finding where unanticipated consequences emerge and sees the whole picture.

Safety Considerations: Students must use caution when handling the toothpicks. Students must also have great care and exercise great safety when traveling through the course blindfolded.

Standards:

Standard 5: Exhibits responsible personal and social behavior that respects self and others in physical activity settings.

I. Set Induction: Today we are going to participate in cooperative activities that will enable us to understand the ways of a system thinker.

II. Objectives:

Cognitive: Students will be able to associate with at least one of the ideas from the lesson focus.

Affective: Students will be able to work as partners and guide their partners safely through the maze.

Psychomotor: Students will be able to practice their loco motor skills during the activity.

III. Lesson Plan Sequence:

Intro & Attendance / Teacher Directed (3 minutes)

- Students will sit in their floor spots while attendance is being taken.

Lesson Content / Toothpick Teaser (10 minutes)

- Students will form groups of 2. Students will be given 6 toothpicks and asked to place them flat on the table. Using all 6 toothpicks, students must create four equal sided triangles.

Debrief Questions: 1. How did I "set you up" when I instructed you to put the toothpicks **flat** on the table? 2. If you had a partner, in what way did he or she encourage or discourage "out of the box" thinking?

Transition into 2nd Activity / Light House (17 minutes)

- Students will stay in their groups of 2. Two groups of students will participate at the same time. One student in the group will be blindfolded and the other person will be their eye's through the course. The object of the activity is to have the students successfully get through the course without hitting any of the objects in the course.

Debrief Questions:

1. What was needed from every group member in order to make this activity successful? 2. Are there ever times in your life when you must rely on others in order to be successful at something? When and what do you do?

Class Debrief/ Closure: (5 minutes)

- Is it ever hard for you to ask others for help? Why?

Assessment:

Have students answer debrief question in journals