

## LESSON 4: PROBLEM-SOLVING CHALLENGES

### Grade-Level Outcomes

#### Primary Outcome

**Working with others:** Problem-solves with a small group of classmates during adventure activities, small group initiatives or game play. (S4.M5.7)

#### Embedded Outcomes

**Health:** Identifies positive mental and emotional aspects of participating in a variety of physical activities. (S5.M2.7)

**Accepting feedback:** Provides corrective feedback to a peer, using teacher-generated guidelines, and incorporating appropriate tone and other communication skills. (S4.M3.7)

### Lesson Objectives

The learner will:

- demonstrate safe working practices while completing activities and initiatives.
- practice problem-solving skills and collaboration in small groups.

### Equipment and Materials

- Golden Gate Activity Guidelines
- Building supplies such as sheets of paper, paper clips, straws, toothpicks, tape, rubber bands, string, Popsicle sticks, balloons, or anything else you can get cheaply
- Marbles
- PVC pipes cut in half

### Introduction

*For homework, you were asked to find jobs that involved a high amount of trust. Does anyone want to share the jobs they found? What do you think it takes for a person to have that kind of trust in a job they go to every day? Today we will work on problem-solving skills and working safely in groups. Take what you have learned in previous lessons and apply them to the challenges you face today.*

## Instructional Task: Golden Gates

### ■ PRACTICE TASK

*Yesterday, I asked you to think about a job that relies on trust, and you came up with some great ones. Trust is important in almost every profession. Today, you are contractors in charge of a building project. You will have only 30 minutes to build a masterpiece, so trusting your teammates to do their part is very important.*

*Your goal for the day is to build something that stands by itself and reaches 5 feet in height.*

*You will start with the following building materials: five sheets of paper, a pencil, three balloons, five feet of string, and a paper bag. You must work as a team to figure out a building strategy and how you will procure more building supplies. You can earn additional supplies through group or individual challenges as listed on the rules sheet also included in your starting materials.*

### Extensions

- Perhaps a natural disaster comes through and takes out the factory that makes one of the items students are using, making it no longer available.
- Perhaps an item goes on sale and students can buy two for the price of one, doubling the number of goods that the team receives.
- You also can extend the task using an amazing race format, which incorporates challenges along the way that teams must overcome.

**Guiding questions for students:**

- Who took charge of your building team? Was this student selected? If so, why?
- What materials do you wish you had and why?
- Which materials were unhelpful?
- Did you see any construction techniques in other groups you wished you had used?
- As students build, ask them why they have chosen to implement this strategy. Get them to explain their methods to you.
- Ask how they feel and what their emotions are in the height of the activity and afterward to see if they changed as time ran down and pressure built.

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**EMBEDDED OUTCOME: S5.M2.7.** During the activity, take a break and discuss with students positive mental and emotional aspects of participating in a variety of physical activities, particularly cooperative activities. Teach students how this task is more mental than physical in nature but is still important in order to be a physically literate student.

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**Student Choices/Differentiation**

Students choose their groups.

**What to Look For**

- What kinds of problem solving can be observed?
- Are students mentally and emotionally supporting each other during both their successes and failures?

## Instructional Task: Marble Roll

**■ PRACTICE TASK**

In small groups, students must use only the PVC pipes to transport the marble into the assigned container. Each group will build a course out of PVC pipes. You can assign the following criteria or create your own:

- Each group will design a course.
- Once the marble is in the PVC pipe, the person holding it may not move his feet.
- Each person must be involved before the marble can be deposited.

**Extension**

The end location can be made more difficult or obstacles can be put in the way.

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**EMBEDDED OUTCOME: S4.M3.7.** Generate a positive communication feedback sheet. Have students use the handout to provide feedback to their classmates on how well they communicate with each other during this group-challenge activity.

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**Student Choices/Differentiation**

Students get to choose which piece of PVC they would like to use. Offer larger and smaller sizes, longer and shorter pieces, and they can even be painted.

**What to Look For**

- What is the frustration level of students?
  - Are they giving each other feedback on either the strategy or how it is being implemented?
  - Are they supporting one another's ideas?
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## Formal and Informal Assessments

- Informal assessments of students' ability to work together on various task.
- Exit slips:
  - What strategies did your group use to complete the building challenge?
  - If your team failed to meet the challenge or did not perform as well as others, do you think more successful teams got more out of the building challenge than your team? How did you feel if your team either made the height or failed to meet the height and why?

## Closure

- As you built your structures and used your teammates to successfully complete the marble roll, what do you think went well? What could the group improve on?
- Some of you took on the responsibility for leading the group while others followed. Why are both roles important?
- Do you think that contractors struggle with some of the same predicaments you struggled with today?
- Each of you has your own thoughts, ideas, and strategies. Did this help or hurt your group today, and why do you think that?

## Reflection

- Were all students mentally active in today's lesson?
- Did anyone look frustrated or mentally worn out?
- Do the embedded outcomes need to be developed or practiced more?

## Homework

*Can you find materials at home similar to the ones provided in today's lesson? Practice building structures at home to exercise your mental skills.*

## Resources

- Curran, E. (2011). Activities and initiatives. *Swofford challenge course manual*. 2nd ed., vol. 1, 19-64. Inman, SC.
- Dale, G., & Conant, S. (2004). *101 teambuilding activities: Ideas every coach can use to enhance teamwork, communication, and trust*. Durham, NC: Excellence in Performance.

## GOLDEN GATE ACTIVITY GUIDELINES

### Structure Build

The objective is to build a stand-alone structure that stands 5 feet (1.5 m) in the air using only the building materials that were issued to your group, or by earning additional materials after completing small challenges. You can complete each task only once to earn objects for your team's creation, so take on as many of the challenges as you can. Each task can earn you up to 5 building supplies (assigned by the teacher). Different team members must participate in each activity (if there are enough). You may alter the items that you earn in any way, but your structure must stand on its own and not be attached to the wall.

Remember: Your goal is to build a solid structure that reaches the 5-foot line marked on the wall.

### Challenges to Earn Items

- **50/50 carry:** Four students participate. You must carry a teammate to the yellow line and then have her carry you back. Then, two different teammates will have to complete this same task.
- **Human pyramid:** Six students make a human pyramid.
- **Human knot:** Six students put their right and left hands in and link hands. They then have to untangle themselves without letting go of the hands they are linked to.
- **Human ABC:** At least three students use their bodies to spell out each of the 26 letters in the alphabet, one at a time. Be sure that your team leader checks off each letter.
- **Push-ups:** Team members work together to complete 100 push-ups. Everyone in the group can complete a few, or a few individuals can complete a bunch, as long as you complete 100 as a team.
- **Sing-along:** All team members participate in a sing-along. You choose the song, and all team members must sing the entire song.
- **Team dance moves:** All team members do the same dance at the same time. It can be a dance that you already know, but make sure everyone is participating.
- **Team names:** Someone from your team must learn every other team member's name and give them to the facilitator without using nametags or other team members.
- **Trivia questions:** You must answer six trivia questions correctly to earn your next supply.
- **Moon ball:** Your team must work together to keep a beach ball off the ground for a total of 50 bumps or sets. Each team member must touch the beach ball at least once during the challenge. If the ball touches the ground at any point, the count starts over.
- **Hula-Hoop:** Two team members must Hula-Hoop continuously for 1 minute. (There is only one Hula-Hoop, so you will have to take turns.) The Hula-Hoop must be around your waist.

### Trivia Questions

1. **Who is our state's governor?** \_\_\_\_\_
2. **The first battle of the Civil War took place in which state?** South Carolina
3. **Name seven *Sesame Street* characters.** Elmo, Big Bird, Cookie Monster, Ernie, Bert, Grover, Oscar, Zoe, Abby Cadabby, Gordon, Mr. Snuffleupagus, Baby Alice, Slimey, and any more you can think of
4. **How many justices are on the U.S. Supreme Court?** Nine
5. **What does SPF stand for on sunscreen containers?** Sun protection factor
6. **What was Mickey Mouse's original name? (Hint: It's not Mickey.)** Mortimer Mouse
7. **In basketball, it's called a tip-off; in football, it's a kickoff. What is it called in hockey?** Face-off
8. **What are the three primary colors in art?** Red, blue, yellow

9. **What is the correct musical term that means to play louder, gradually?** Crescendo
10. **What is the (local NFL team) mascot's name?**
11. **What is the person who shoes horses called?** Farrier
12. **In what year did the United States declare independence from England?** 1776
13. **What is the name of an angle that measures greater than 90 degrees but less than 180 degrees?** Obtuse
14. **In what country are the next Olympics going to be held?** \_\_\_\_\_
15. **On a standard computer keyboard, which key is the largest?** Spacebar
16. **Mount Rushmore features the faces of four American presidents. Name two of the four:** George Washington, Abraham Lincoln, Thomas Jefferson, Theodore Roosevelt
17. **Who won the Heisman Trophy this year?** \_\_\_\_\_
18. **What is the word used in tennis for a score of zero?** Love
19. **What is Barbie's kid sister's name?** Skipper (1964)
20. **Which Olympian earned the most individual medals over the course of his or her life-time?** Michael Phelps

#### **Items You May Earn**

- 4 paper plates
- 1 roll of tape
- Approximately 50 cotton swabs
- 50 Popsicle sticks
- 40 drinking straws
- 250 toothpicks
- 5 medium balloons (not blown up)
- 2 foot-long rulers
- 1 pair of scissors
- 10 wooden golf tees
- 10 paper clips
- Approximately 30 feet of ribbon
- 4 plastic forks

**\*\*Be creative and use whatever you can find or have money for.\*\***