Stepping Stones

Learning Outcomes
Students will:
- Work together to achieve a common goal
- Identify and practice both leadership and followership in accomplishing group tasks
- Learn procedures that are safe and effective for the given task
- Understand techniques to evaluate the process of solving problems
- Learn positive mechanisms to deal with failure

Materials
- Foam stepping-stone blocks, one per student
- Masking tape and markers
- Short boundary markers

Setup: The class can do this as one group if there are no more than 20 students. If there are more than 20, divide the class in two. Mark a distance that the group(s) must travel; this distance should be a few more paces than the number of students in one group. With boundary markers, mark the beginning and the end of the distance to be covered. If you are working with more than one group, ask each group to stand behind opposite boundary markers.

Framing:
1. Explain to the class that they have already effectively solved many problems. Ask each of them to take a minute and think of a positive quality that has helped the class be successful. Have each class member write a chosen quality on a piece of tape and attach it to his or her stepping stone. They should then report out to the class.
2. Say to students, "You are all part of a special unit that is being given a very difficult mission." [If there are two or more groups, emphasize that every group is part of the same special unit.] "Your goal is for the entire special unit to be successful."

Procedure:
1. Every member of each group must get across the marked area, from one boundary line to the other.
2. No one may touch the ground; participants can only stand on the foam stones.
3. Players must remain in contact with the stones at all times. If a stone is left unattended for any period of time, that resource, or “quality,” is lost. Tell students, “Remember, we must stay attentive to the qualities that have made us successful.”
4. If any group member touches the ground for any reason, then the entire class must go back to the start.
5. Foam blocks must be picked up and placed down. They may not be used to slide across the floor.

Discussion:
- Create smaller groups of 5-6, and have each group discuss what qualities made them a more effective team, and what where things they could do to improve for next time.

Safety:
- If you are using something other than the foam squares, be careful that the “stones” you’re using are not too slippery.
- Do not allow students to carry each other.
- Be careful to ensure that students do not jump too far to a boundary line.

Tips and Comments:
- Stones (qualities) can be given back to the class if you, as facilitator, observe that a particular quality is really present.
- Another technique to consider trying is: If a quality is “lost,” ask the group to identify some techniques or behaviors they could practice that would help them get the quality back. Award a positive brainstorm with a reissue of that quality.
- If there are two groups, allow them to share resources. This is important to allow so that they understand they are working as one unit, rather than competing with each other

Assessment Option
Evaluate the class’s problem-solving ability using the Problem Solving -- Group Assessment Checklist provided in the Assessment section near the back of this book. You can use this either to assess all of the problem-solving lessons or simply to assess this individual lesson.
Fill the Basket

Learning Outcomes
Students will:

- Work on throwing skills together to achieve a common goal
- Identify and practice strategies and roles in their approach to the challenge
- Set goals: how many balls it will be able to get into the bucket in a two-minute time period

Materials:

- 15-20 tossable items
- A bucket
- Boundary rope
- Stopwatch

Setup: Place a bucket in the center of a designated play area. A good playing area is half of a regular gym. Lines on the gymnasium floor, rope or cones should mark the boundaries for the throwers. Have players stand outside the boundaries. Place the balls, also outside the boundaries, in front of the players.

Framing: Introduce the game by discussing the idea that realistic goals are important for a group to have so that it can monitor its progress. Everyone must be included in one role or another so that every member feels a part of a team; this enhances the whole group’s effort.

Procedure:
1. The object of this game is to have the group get as many tossables as possible into the bucket in a two-minute time period. There are two types of players: the throwers and the retrievers. The class decides how many throwers and how many retrievers they will have for each round. The throwers must remain behind the boundaries. The retrievers may stand in any place they wish, but they may not “help” the balls into the bucket in any way. Their job is simply to retrieve missed shots and return the tossables back to the throwers as quickly as possible. Players may not change positions during a round. (Other rules allow “helping,” but requiring the
retrievers to use their hands only to get the balls back to the throwers leads to more interesting game strategies.

2. At the end of each round, allow players to make any adjustments to their positions, and let teams discuss changing their tactics.

3. Continue with rounds until the goal is achieved or time runs out. If it seems that the group has set an unrealistic goal, ask if they would like to reconsider their goal and set a new one.

**Discussion:**
- Create smaller groups of 5-6, and have each group discuss what qualities made them a more effective team, and what where things they could do to improve for next time.

**Assessment Option**
Evaluate the class's problem-solving ability using the Problem Solving -- Group Assessment Checklist provided in the Assessment section near the back of this book. You can use this either to assess all of the problem-solving lessons or simply to assess this individual lesson.
Mass Pass

Learning Outcomes
Students will:
- Identify and practice using the different strengths of individuals in the group
- Work together to achieve common goals
- Develop problem-solving techniques to accomplish group tasks
- Contribute their own and listen to others' ideas in the process of solving problems
- Evaluate the effectiveness of their problem-solving process

Materials
- 1 Mass Pass Kit, obtainable from Project Adventure

Setup: Using rope, create a fairly large square (15'-25' per side). Make sure that the square has clearly defined corners. In one corner of the square place one bucket (bucket #1), and in the opposite corner place the other bucket (bucket #2). Place all of the fleece balls and flying discs/deck rings into bucket #1.

Framing: Tell students that this activity requires them to transport multiple objects around the perimeter of the square. Say, “The ability to plan effectively is needed to succeed, yet there is also opportunity for creative thinking in devising a strategy. I’ll give you all the rules, and then I’ll give you some time to plan.”

Procedure:
1. The goal for the group is to increase their score over several rounds, and to maximize their score in the last round. Give the following rules, and then allow for some planning time. Points are scored according to how many objects end up in bucket #2 over a 90-second period (round).
2. All objects must start inside bucket #1 at the beginning of every round.
3. Time for each round starts when the first object is removed from bucket #1.
4. All sides of the square must be occupied by at least one student.

1 Mass Pass Kit for 20-30 students is catalog item code GMBMPK; the Deluxe Kit for 30-80 students is catalog item code GMMMPDK. (The Mass Pass Kit is included in the Middle School Adventure Kit.)
5. Once a person has chosen a side of the square to stand on, she or he may not switch sides within a round.
6. Every participant must touch each object after it leaves bucket #1 and before it ends up in bucket #2.
7. Objects may not be passed to anyone to the immediate right or left; in other words, the object must "skip" at least one person when it is passed.
8. Points are earned for each object that is placed successfully inside bucket #2.
9. Whenever an object is dropped outside the boundary marker, it must be returned to the “resource container” (bucket #1) to be recycled, if it is to be used in the round.
10. If an object is dropped inside the boundary markers, it may not be retrieved and is lost for the duration of that round.
11. No member of the team may step inside the perimeter boundary during a round. If this occurs, all of the objects must be returned to the starting bucket.
12. All actions must stop when the time is up. At that time, students should count the objects in bucket #2 and tally their score.
13. Give planning opportunities between each round so that the class can continually improve their time.

**Safety:** Use soft tossable objects, not hard plastic ones.

**Discussion:**
- Create smaller groups of 5-6, and have each group discuss what qualities made them a more effective team, and what where things they could do to improve for next time.

**Tips and Comments:**
- Because there are so many steps in preparing for this game, it may help your group if rules are either written on flipchart paper or handed out to students.
- To increase the challenge level of this activity, include different objects that have different point values -- for example, include a rubber chicken that is worth 50 points.
- If you have a large group, increase the 90-second round time to 3 minutes.

**Assessment Option**
Evaluate the class’s problem-solving ability using the Problem Solving -- Group Assessment Checklist provided in the Assessment section near the back of this book. You can use this either to assess all of the problem-solving lessons or simply to assess this individual lesson.
Key Punch

Learning Outcomes
Students will:

- Identify and practice using the different strengths of individuals in the group
- Work together to achieve common goals
- Practice both leadership and followership in accomplishing group tasks
- Develop problem-solving techniques to accomplish group tasks
- Contribute their own and listen to others' ideas in the process of solving problems
- Evaluate the effectiveness of their problem-solving process
- Follow procedures that are safe and effective for the given task
- Develop positive mechanisms to deal with failure

Materials
- Project Adventure Key Punch Set, obtainable through Project Adventure

Setup: Make a rectangle with the boundary rope that is provided in the set. The rope should be about 80' long. Inside the rectangle, place 30 numbered spot markers in random order. Place the spots well inside the boundary so that they cannot be easily reached from outside the boundary. About 20-30 feet away, place a starting line.

Ask the class to stand behind the starting line.

Framing: Say to students, “You have been asked here today because you are experts on debugging large computers. The computer that you are challenged to fix is set here on the ground. What I do know is that the best way to fix this computer is to touch each number in sequence, from lowest to highest. The faster the numbers are touched, the greater the number of bugs that are removed from the program. You will be timed.”

Procedure:
1. Only one player is allowed in the keypad area at one time.
2. Numbers must be touched in sequence.
3. Everyone in the class must touch at least one number.
4. The time starts when the first person crosses the starting/finish line. Time stops when the last person crosses back over the starting/finish line.
5. Ropes and spots may not be moved.
6. Although players may talk while at the pad, **no planning** can occur there, only execution of a plan.
7. Players have 30 minutes or 5 trials, whichever comes first, to achieve the fastest time possible.
8. The penalty for each rule infraction is 10 seconds added to that group’s time for that particular trial. If a group has more than 1 person in the pad 5 different times during a trial, add 50 seconds to the total time of that trial.

*If doing this with multiple groups, you can have all the groups sharing the same pad. However, only one group can be on the pad at one time. Unless you add to the story that all players are working for the same computer debugging company, (and even if you do...), there will be lots of competition between groups. This adds to the discussion at the end.*

**Discussion:**
If multiple groups are involved, the discussion may work best in those separate groups. Ask students:
- Create smaller groups of 5-6, and have each group discuss what qualities made them a more effective team, and what where things they could do to improve for next time.

**Safety:**
- Make sure that the ground is flat and free from holes both inside and outside the “keypad” area.
- If doing this in a confined space, limit movement to walking only to and from the start line.

**Tips and Comments:**
- If you have a class of more than 15, use 2 groups.
- If the class numbers more than 30, you may want to consider 3 groups.
- Have different starting lines for each group; each group should be on a different side of the giant “keypad.”
- Leaving out a keypad number or two adds a twist to the activity.
- You may also opt to have multiple pads for multiple groups to use separately.
- If there is only one teacher, ask one student in each group to be the timer and the penalty observer.
- If the group is ready for this, have them keep track of penalties themselves.

**Assessment Option**
The Problem Solving -- Group Assessment Checklist is an excellent way to assess the class’s problem-solving ability. See the Assessment section near the end of this book.
Change Up

Learning Outcomes
Students will:
- Work together to achieve common goals
- Apply effective problem-solving strategies to accomplish group tasks
- Be open to using a variety of ideas in the problem-solving process

Materials
- A set of laminated numbers that equal the number of students in the class (with classes over 30, multiple sets of numbers are needed) OR
- A deck of cards, substituted for the laminated numbers
- A piece of play rope or 9-mm rope, about 6’ long.
- Extra pieces of rope for knot-tying practice

Setup: None needed.

Framing:
1. Say to students, “This activity explores dealing with changes. Each of you will be given a card. Please do not turn it over and look at it until you are told to do so.
2. “Your group will be given a series of challenges. After each challenge is identified, you will have several opportunities to plan and find solutions. Your group’s goal is to execute the solution as efficiently and quickly as possible. Once you have had a chance to improve on your solution, a new challenge will be presented. The goal will be to be just as efficient with each new challenge and each solution.”
3. With a large class, have multiple groups of at least 15 doing the same task side by side. You can brief them as one class all trying to achieve world record times collectively. This allows for collaboration versus competition between groups.

Procedure:
1. Hand out a card to each person. Students cannot look at their cards until you tell them to.
2. Remind students that they will be timed on their execution of their group’s solution. Tell groups that they must signal you once they have finished the task so that you stop timing them.

3. Give the group **Challenge #1**: “Turn your cards over. Now line yourselves up in numerical order, from smallest to largest card number.

4. After they finish, tell each group their time on this attempt. This time represents their first benchmark.

5. Ask groups to shuffle their cards by having each person trade cards at least three times with someone different. Once they get a new card to keep, students must refrain from looking until they are told to do so. Give them a few minutes of planning time to refine their solution to Challenge #1.

6. Give the start signal and time the second solution. Report these times to the groups.

7. Allow one or two more attempts until you think students have achieved good times. Make sure that they shuffle the cards after each attempt.

8. Make a change by announcing **Challenge #2**: “Now line up in two lines: odd numbers in one line, even numbers in the other. The odds should be in descending order, and evens should be in ascending numerical order.”

9. Report times to the groups, then repeat rules 5-8 as appropriate.

10. Make another change by announcing **Challenge #3**: “Line yourselves up alphabetically now, according to the first letter of the number on your card.” Say “Start,” and time the attempts.

11. Report times to the groups, then repeat rules 5-8 as appropriate.

**Discussion:**
- Create smaller groups of 5-6, and have each group discuss what qualities made them a more effective team, and what where things they could do to improve for next time.

**Tips and Comments:**
- Between Challenge #2 and #3, ask the group to spend some time planning how to respond to the next change. See if they can identify some ideas that will help them organize and act even though they do not yet know what the specific change will be. The immediate goal is to lower their time for a first solution once a change is announced.
- You can leave out specific numbers in the numerical sequence.
- There are many variations to try. Be creative!
- If done too long, this activity can become tedious.

**Assessment Option**
Evaluate the class’s problem-solving ability using the Problem Solving -- Group Assessment Checklist provided in the Assessment section near the back of this book. You can use this either to assess all of the problem-solving lessons or simply to assess this individual lesson.
Pipeline

Setup: Create a zone or path that is a number of steps longer than the number of people in the class (or in each group). At the end of the zone, place a bucket or container. If the class is larger than 15, it is best to do this in multiple groups. The groups can be positioned to work side by side, or in a passing format.

Give each student a pipe. Give each group a series of objects that come with the Pipeline set.

Framing:
1. Say to students, "You are all working for a company that is trying to produce as many items as it can. In order for the product to be ready for shipment, it must pass through the full pipeline, which ends in the final container.
2. "Before you begin, you may practice behind the start line for five minutes. At that time, I would like you to set an aggressive but attainable goal. You will have 20 minutes to execute and meet your goal."

Procedure:
1. Only one person can touch the object, and that is at the start of the pipeline behind the start line.
2. The object must never stop moving when it is in the pipeline, and it can never move backwards.
3. If the object is in a student's pipe, that student may not move his or her feet.
4. Pipes cannot touch each other.
5. If any of the above occur, production stops, and every object in the pipeline goes back to the starting area. Products that have made it to shipping (the container) may remain there.
6. If an object drops, it goes back to the start

Discussion:
- Create smaller groups of 5-6, and have each group discuss what qualities made them a more effective team, and what where things they could do to improve for next time.
**Safety:** Be careful of fallen marbles on the floor.

**Tips and Comments:**
- You can make this more difficult by putting obstacles and bends in the pipeline pathway.
- Handing your group a written copy of the rules can help them plan more effectively.

**Assessment Option**
Evaluate the class's problem-solving ability using the Problem Solving -- Group Assessment Checklist provided in the Assessment section near the back of this book. You can use this either to assess all of the problem-solving lessons or simply to assess this individual lesson.
Object Retrieval

Lesson Objectives:
Students will be able to:
- Identify creativity
- Recognize creativity
- Experiment with being creative

Materials:
- Object Retrieval set, obtainable through Project Adventure

Set-up:
- Create two circles using the boundary rope. The circle can be 10-20 feet in diameter, and 10-20 feet apart.
- Place the two spot markers in the center of the circles.
- Fill the buckets with balls (typically the more balls in the bucket, the more difficult the solution becomes). Place the full buckets on the spot markers.
- Place the other props outside the boundary circle on the ground.

Framing: Say to the class: “There is usually more than one way to solve most problems. This is certainly the case with this activity. I am asking you to be creative in your solution. There are two identical set-ups, as you can see. In each circle is one bucket full of balls, and in the second bucket is empty. The balls represent ideas, which need to be handled carefully. The goal is to share all of the ideas from each circle, by putting the balls onto the spot of the other circle, and vice versa.”

Procedure:
1. Put all the balls into the buckets.
2. The objective is for the group to transfer all the balls from one spot to the other.
3. The boundary rope and the spot markers may not be moved.
4. No person may touch the ground or extend a body part over the boundary marker. Any time this occurs, the team must start again (i.e.
must remove any props from within the circle) and the person may incur a physical limitation.
5. **Only** the props provided may be used to transfer the objects.

**Safety**
There are few safety considerations for this activity

**Discussion**
- Create smaller groups of 5-6, and have each group discuss what qualities made them a more effective team, and what were things they could do to improve for next time.

**Tips and Comments**
1. To increase the challenge and participation levels, add the following rule:
2. Anyone touching a prop that is extending over the circle boundary needs to put on a blindfold as protective goggles to prevent radiation exposure. They need to keep the blindfold on so long as they are touching or holding an object inside the boundary. If they are touching a person who is touching an object, then both people need to wear blindfolds.
3. Allow the group to recover any spilled balls and put them into the bucket to complete the task.
4. To make the task slightly easier, eliminate the rule that states people cannot reach across the boundary line.
5. To assure full class participation, you may want to mandate that each person must have a role in the transfer of ideas.

**Assessment Option**
Evaluate the class's problem-solving ability using the Problem Solving -- Group Assessment Checklist provided in the Assessment section near the back of this book. You can use this either to assess all of the problem-solving lessons or simply to assess this individual lesson.
Fast Back

Lesson Objectives:
Students will be able to:
• Recognize creativity
• Analyze their own creativity
• Use different modalities while engaged in creative process
• Evaluate goals and modify them when needed

Materials:
• Alphabet Soup Set (available at Project Adventure, Inc.)

Set Up

Create three zones as shown in the diagram below.

- Place all the foam blocks (with the cutouts removed) in Zone A.
- Place all the cutouts of the letters and numbers in Zone B.
- Make the Assembly Zone midway between Zones A and B.
- The distance from Zones A and B to the Assembly Zone can range from 10-20 yards
- Divide the participants into groups as follows:
  - Assemblers: must stay in the Assembly Zone at all times, put cutouts into blocks
  - Resourcers: can move back and forth from Zones A and B to the Assembly Zone, may not enter the Assembly Zone at any time

Framing: Say to students:

“Our class has been brought to this lab to perform a delicate experiment. We have been asked to assemble a message in response to a communication signal from another galaxy. We believe these beings are called KayJays, and we think
they are a highly advanced life form; however, we need to be prepared to respond in a language that will be understandable to whomever sent this message. Therefore, we need to be able to format our message quickly and at the same time to be able to change and adapt how we “write” the message so it can be understood. Right now, we will have to assemble the message by putting the letters and numbers back into their appropriate blocks and assembling the blocks into a specific pattern that will be recognizable by the KayJays. As we create our message, we will be timed to insure that we are communicating in the most efficient manner possible.

Procedure:

1. The task is to return all the cutouts back into the “right” block, and then the blocks get assembled in a particular order.

2. The particular order is as follows: Arrange the blocks in alphabetical order followed by numbers in numerical order. Form three rows: A-M (13 blocks), N-Z (13 blocks) and numbers 0-9 (10 blocks).

3. When the time starts, Resourcers may bring letters, numbers and cutouts to the Assembly area. Resourcers may only carry one piece at a time to prevent work related injuries. If a Resourcer carries more than one object, s/he must return the objects to the start Zone and then take a 30 second recovery break.

4. Resourcers may place the objects they carry inside the Assembly Zone. They may not help assemble the letters or step into the Assembly Zone. If either of these infractions occurs, the entire operation must stop for 10 seconds.

4) Assemblers may not reach outside of the Assembly Zone at any time. Any body part crossing the boundary will cause a 10 second work stoppage every time it happens.

5) When assembling the blocks into the final shape, if blocks touch each other that should remain separated, that causes four blocks to be removed from the assembly area and the pieces must be returned to either Zone A or B before they can be reused.

Safety:
No special considerations necessary

Discussion:
- Create smaller groups of 5-6, and have each group discuss what qualities made them a more effective team, and what where things they could do to improve for next time.
Tips and Comments:

- The challenge level of this activity can shift dramatically depending on the configuration of the final assembly. Know your audience and choose a challenge that matches the class’s skills and abilities. Other variations for arranging the blocks include the following:
  - blocks arranged alternating letters and numbers right side up and upside down
  - blocks not arranged in a connected pattern, all letters and numbers assembled
  - blocks arranged in small patterns (blocks of 4 for example)
  - blocks arranged in reverse alphabetical and numerical order
- The distance between the zones also greatly impacts the activity.

Assessment Option
Evaluate the class’s problem-solving ability using the Problem Solving -- Group Assessment Checklist provided in the Assessment section near the back of this book. You can use this either to assess all of the problem-solving lessons or simply to assess this individual lesson.