

## PROBLEM SOLVING SKILLS

### Performance Standard 21A.J

Demonstrate observable problem-solving behaviors within a team-building/cooperative or problem solving activity and complete a reflective assessment immediately after participation in the problem solving group task accordingly:

- *Knowledge:* Knows group dynamics.
- *Process:* Interacts positively in a group setting while participating in a problem solving task.
- *Explanation:* Communicates with group during implementation of activity and suggests future improvements appropriately.

### Procedures

1. ***In order to demonstrate individual responsibility during group physical activities (21A)***, students should experience sufficient learning opportunities to develop the following:
  - Demonstrate problem-solving skills and strategies when participating in physical activity.

Note: Work cooperatively with others to achieve group goals in competitive and non-competitive situations (e.g., challenge course, orienteering). Application of this assessment should only occur after students have successfully participated in several ice-breaker activities, adventure games, problem solving activities, and trust activities. In these settings, they should have consistently exhibited problem-solving behaviors and have been led through the debriefing process under the direction of a skilled facilitator.

2. Assign students to a group (5 to 10 students per group)
3. Present each group with a problem to be solved that has multiple potential solutions. (Whenever possible, each group should be given a different problem.)
4. Ask students to read the assignment, discuss strategies to reach the stated outcome and implement their plan. (There should not be any teacher/student communication.)
5. Use the rubric to evaluate each student's contribution to the group process, while the students engage in the planning, discussion and implementation.
6. Ask each group participant to complete the scoring scales evaluating themselves and their group immediately following completion of the activity.

Note: Unlike previous team-building activities, do not conclude this activity with a debriefing.

7. Evaluate each student's performance using the "Problem Solving Skills" Rubric as follows:
  - *Knowledge:* The knowledge dimension was demonstrated in the performance.
  - *Process:* Interacted positively in a group setting while participating in a problem solving task.
  - *Explanation:* Communicated appropriately and effectively with other group members.

### Examples of Student Work

- [Meets](#)
- [Exceeds](#)

### Time Requirements

- The teacher-scored portion of the assessment will take at least 5 minutes per group. The student-scored portion should take 2 minutes per group member. It is preferable to have the self and peer evaluation conducted on the same day, and immediately following the activity.

### Resources

- The following are excellent resources for teaching and selecting tasks that lend themselves to problem-solving and team building skill development:
  - Karl Rohnke, *Cowstails and Cobras II*, published by Project Adventure, Kendall/Hunt Publishers, Dubuque, IA
  - Karl Rohnke, *Silver Bullets*, published by Project Adventure, Kendall/Hunt Publishers, Dubuque, IA
  - Karl Rohnke and Steve Butler, *Quicksilver*, published by Project Adventure, Kendall/Hunt Publishers, Dubuque, IA
- Several of the activities in these texts also require minimal equipment.
- Video equipment
- Materials for assessment do not exceed the materials for teaching this content.
- Problem Solving Skills Rubric

NAME \_\_\_\_\_ DATE \_\_\_\_\_

## PROBLEM SOLVING SKILLS

### Self Evaluation

For the following self evaluation, students complete the rating scale on themselves.

- 1 I did not engage in this behavior.
  - 2 I tried to do this, but was not always successful.
  - 3 I always engaged in this behavior.
- 
- A. \_\_\_\_\_ I stated the problem in terms of needs, not solutions.
  - B. \_\_\_\_\_ I tried to move us to reach consensus on our goal.
  - C. \_\_\_\_\_ I presented several ideas for the group to consider.
  - D. \_\_\_\_\_ I used only positive language to encourage others.
  - E. \_\_\_\_\_ I listened reflectively to understand others' ideas.
  - F. \_\_\_\_\_ I encouraged the group to suggest many ideas before we began discussion of solution.
  - G. \_\_\_\_\_ I often used other's ideas to piggyback my ideas.
  - H. \_\_\_\_\_ I considered pro and cons as we reached a decision.
  - I. \_\_\_\_\_ I wanted each of us to state our preferences for ideas as part of our decision-making.
  - J. \_\_\_\_\_ I suggested who would carry out each part of our decision based on the strengths of members.
  - K. \_\_\_\_\_ I suggested a time-line for completion of our task.
  - L. \_\_\_\_\_ I did what I said I would do.
  - M. \_\_\_\_\_ I did my task when it was due and with the quality my group expected.
  - N. \_\_\_\_\_ I spoke up about the things that bothered me in this activity.
  - O. \_\_\_\_\_ I helped make our group process safe for all members.
  - P. \_\_\_\_\_ I attempted to rush my group into stating a solution so we could move into the plan.
  - Q. \_\_\_\_\_ I gave my group a great idea to start us off, and urged us to make a plan right away.
  - R. \_\_\_\_\_ I discarded ideas that were not high quality.
  - S. \_\_\_\_\_ I evaluated each idea as it was presented in our brainstorming.
  - T. \_\_\_\_\_ I looked for clarity of ideas as we brainstormed.
  - U. \_\_\_\_\_ I urged us to vote and go with the decision with most votes.
  - V. \_\_\_\_\_ I let us decide individually who would do what, and when they would do it.
  - W. \_\_\_\_\_ I saved my effort in this project for the implementation.
  - X. \_\_\_\_\_ I let my group members know when they were not helpful.
  - Y. \_\_\_\_\_ I did not need to evaluate our process because our solution solved the problem.

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## PROBLEM SOLVING SKILLS

### Group Evaluation

For the following group evaluation, each student completes the rating scale on their group.

- 1 We did not engage in this behavior.
  - 2 We tried to do this, but were not always successful.
  - 3 We always engaged in this behavior.
- 
- A. \_\_\_\_\_ We stated the problem in terms of needs, not solutions.
  - B. \_\_\_\_\_ We tried to move our group to reach consensus on our goal.
  - C. \_\_\_\_\_ We presented several ideas for the group to consider.
  - D. \_\_\_\_\_ We used only positive language to encourage others.
  - E. \_\_\_\_\_ We listened reflectively to understand others' ideas.
  - F. \_\_\_\_\_ We encouraged the group to suggest many ideas before we began discussion of solution.
  - G. \_\_\_\_\_ We often used some ideas to piggyback other ideas.
  - H. \_\_\_\_\_ We considered pro and cons as we reached a decision.
  - I. \_\_\_\_\_ We wanted each other to state preferences for ideas as part of our decision-making.
  - J. \_\_\_\_\_ We suggested who would carry out each part of our decision based on the strengths of members.
  - K. \_\_\_\_\_ We suggested a time-line for completion of our task.
  - L. \_\_\_\_\_ We did what we said we would do.
  - M. \_\_\_\_\_ We did our task when it was due and with the quality expected.
  - N. \_\_\_\_\_ We spoke up about the things that bothered us in this activity.
  - O. \_\_\_\_\_ We helped make our group process safe for all members.
  - P. \_\_\_\_\_ We attempted to rush our group into stating a solution so we could move into the plan.
  - Q. \_\_\_\_\_ We gave our each other a great idea to start off, and urged each other to make a plan right away.
  - R. \_\_\_\_\_ We discarded ideas that were not high quality.
  - S. \_\_\_\_\_ We evaluated each idea as it was presented in our brainstorming.
  - T. \_\_\_\_\_ We looked for clarity of ideas as we brainstormed.
  - U. \_\_\_\_\_ We urged each other to vote and go with the decision with most votes.
  - V. \_\_\_\_\_ We let each other decide individually who would do what, and when they would do it.
  - W. \_\_\_\_\_ We saved our effort in this project for the implementation.
  - X. \_\_\_\_\_ We let our group members know when they were not helpful.
  - Y. \_\_\_\_\_ We did not need to evaluate our process because our solution solved the problem.

## PROBLEM SOLVING SKILLS

NAME \_\_\_\_\_ DATE \_\_\_\_\_

- Exceeds = 205 - 230 total points
- Meets = 180 - 204 total points
- Approaches = 140 - 179 total points
- Begins = 70 - 139 total points

Individual scores consist of three components:

- 1) the group score from the teacher (scored from 4 to 16 points) (multiply by 5),
- 2) the individual scale score, or self analysis (scored from 25 to 75 points), and
- 3) the average score on the scale score from all group members (scored from 25 to 75 points) for their group.

Because the three scores are very different, the teacher score is weighted to compare with the other two scores. Therefore, the teacher's evaluation of the group is multiplied by 5. The final score is the weighted total score, which will range from 70 to 230.

	<b>Group goals</b>	<b>Brainstorming</b>	<b>Planning</b>	<b>Implement and Evaluate</b>
<b>4</b>	<ul style="list-style-type: none"> <li>• Identified common goal then set about solving problem with all members participating</li> </ul>	<ul style="list-style-type: none"> <li>• Each member participated in suggesting solutions</li> <li>• Many suggestions were "outside the box"</li> <li>• All participated in discussion of alternatives until one decision was made</li> </ul>	<ul style="list-style-type: none"> <li>• Plan was solid</li> <li>• Members selected who to do what by looking at strengths of members</li> <li>• Established when and where</li> </ul>	<ul style="list-style-type: none"> <li>• Group implemented plan as established.</li> <li>• Evaluation centered on process and product of plan</li> <li>• Members were able to suggest future improvements</li> </ul>
<b>3</b>	<ul style="list-style-type: none"> <li>• Group mostly successful in working toward a common goal, but few members occasionally tried to develop individual solution</li> <li>• Good job in identifying common goal</li> </ul>	<ul style="list-style-type: none"> <li>• Each member participated in suggesting a solution</li> <li>• All participated in discussion of alternatives until one decision was made</li> </ul>	<ul style="list-style-type: none"> <li>• Plan was solid</li> <li>• Clear definitions of who would do what by when</li> </ul>	<ul style="list-style-type: none"> <li>• Group implemented plan as established.</li> <li>• Evaluation centered on process and product of plan</li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>• Group tried to work together, but frustration led many to seek individual solutions and force them on the group</li> <li>• Some evidence of a common goal</li> </ul>	<ul style="list-style-type: none"> <li>• Developed several possible solutions but did not discuss alternatives thoroughly before settling on one solution</li> </ul>	<ul style="list-style-type: none"> <li>• Plan was solid</li> <li>• No evidence of who would do what</li> <li>• No timeline</li> </ul>	<ul style="list-style-type: none"> <li>• Group did not implement stated plan</li> <li>• Some members did not follow through.</li> <li>• Evaluation did not address the issues</li> </ul>
<b>1</b>	<ul style="list-style-type: none"> <li>• Individuals within the group tried to solve the problem and force the solution on others</li> <li>• No evidence of a common goal</li> </ul>	<ul style="list-style-type: none"> <li>• Developed one solution to problem and went about planning to use that solution to achieve task</li> </ul>	<ul style="list-style-type: none"> <li>• Elements of the plan were vague</li> <li>• Key components were missing</li> <li>• No evidence of who would do what</li> </ul>	<ul style="list-style-type: none"> <li>• Plan was too vague to be implemented</li> <li>• Members covered the same ground and left much ground uncovered</li> <li>• No ability to evaluate</li> </ul>
<b>Score</b>				