Activity Guide - Using the Problem Solving Process

Word Search

Overview
Working with a team find the following words in the grid. They may be horizontal, vertical, or diagonal in any direction. DEFINE, PREPARE, TRY, REFLECT, PROBLEM, SOLVE, COMPUTER, SCIENCE

Objective
Find and circle all 8 words as quickly as you can!

Once You’re Done
Head to the last page of the activity guide and fill in the row there for the “Word Search” in the table.
Birthday Guests

Overview
A big group of 15 guests is getting together at a restaurant for a birthday. The restaurant has 3 tables that can each seat only 5 people. Below you can find some information about the people who are attending the party.

Aysha, Ben, Carla, Damien, Eric, Fan, Genaro, Hannah, Isaias, Jessica, Kyla, Laila, Max, Nazek, Owen

<table>
<thead>
<tr>
<th>Close Friends (Try to put them together)</th>
<th>In a Fight (Try to keep them apart)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aysha and Damien</td>
<td>Aysha and Genaro</td>
</tr>
<tr>
<td>Max and Isaias</td>
<td>Ben and Hannah</td>
</tr>
<tr>
<td>Nazek and Laila</td>
<td>Fan and Max</td>
</tr>
<tr>
<td>Owen and Genaro</td>
<td>Damien and Laila</td>
</tr>
<tr>
<td>Ben and Jessica</td>
<td>Isaias and Owen</td>
</tr>
<tr>
<td>Genaro and Eric</td>
<td>Kyla and Jessica</td>
</tr>
</tbody>
</table>

Objective
Find the best possible arrangement of guests at the party. Draw your solution in the space below. To help you can cross out the letters of the names you’ve assigned in the row below.

Once You’re Done
Head to the last page of the activity guide and fill in the row there for the “Birthday Guests” in the table.
Road Trip

Overview
You and your friends are going on a long, potentially multi-state road trip. You’ve got 7 days to travel, $300 to spend on gas, and you need to get back home by the end of the trip, but otherwise how your trip goes is up to you. Plan the best trip that you can!

Explore the Tool
Head to http://tripmaker.randmcnally.com/ and make a sample route. Look at the kinds of information the tool provides you about routes and stops along the way. Don’t worry about making a plan yet, but make sure you understand what kinds of information are available.

Develop Criteria
Talk with your group for a few minutes. What matters when assessing different possible routes? Do you care what you see? How long it takes? What it costs? Write down the criteria you’ll use to assess different possible routes.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Goals</th>
<th>How My Route Accounts for It</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Time for the Trip</td>
<td>7 days</td>
<td></td>
</tr>
<tr>
<td>Total Spent on Gas</td>
<td>$300</td>
<td></td>
</tr>
<tr>
<td>Types of Things We Want To Do</td>
<td></td>
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</tbody>
</table>
Make a Route
Every member of your group should separately start planning your trip. You should select what places you want to go and what activities you want to do along the way. Try to make it the best possible trip based on the criteria you and your group agreed upon. For each criteria your group chose, list how your trip accounts for it in the right column. In the space below record all the stops along your trip.

Stops on My Trip

Things We’ll See

Share Your Route and Get Feedback
Share the route you developed with your teammates and explain why you think it is the best possible route given the criteria you chose. Afterwards record their feedback and reactions to your route in the space below. Is there anything that needs to change? How could your route improve?

Improve and Finalize
Using the feedback from your teammates update your route. In the space below write any changes to how your new route addresses the criteria you selected.

Once You’re Done
Head to the last page of the activity guide and fill in the row there for the “Road Trip” in the table.
**Problem Solving Process Notes**

**Reflecting on Using the Process**
How did you use each step of the problem solving process to solve this problem? Give examples of what each step looked like as you were solving that problem.

<table>
<thead>
<tr>
<th></th>
<th>Define</th>
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<th>Try</th>
<th>Reflect</th>
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**The Purpose of Each Step**
For each step in the problem solving process write one sentence explaining its purpose. Why is it included in the problem solving process?

Define:________________________________________________________________________________________
______________________________________________________________________________________________

Prepare: ______________________________________________________________________________________
______________________________________________________________________________________________

Try:___________________________________________________________________________________________
______________________________________________________________________________________________

Reflect:________________________________________________________________________________________
______________________________________________________________________________________________

**Defining Problems with Questions**
Before starting to solve a problem it’s important that you have defined it well. What questions or strategies can you use to better define or understand a problem? Record them in the space below.