

2: LESSON PLAN - Santorini

LEARNING AIMS	<p>Students will:</p> <ul style="list-style-type: none"> ● Engage in cooperative play ● Reflect on their own logical and spatial reasoning ● Gain a basic understanding of game mechanics, rules, fundamental gameplay, scoring, strategies, cooperative principles, increase mental math skills, number sense skills ● Logical Reasoning: Investigating game mechanics and winning strategies by noticing and determining the rules through observation (W1) ● Spatial Reasoning: Locating placements for workers and possible moves in order to know where to move and build (W1) ● Logical reasoning: Analyzing their moves/builds and the board to become strategic (W2) ● Spatial reasoning: Coordinating building and moving up by pathfinding to improve opportunity to win (W2)
MATERIALS	<ul style="list-style-type: none"> ● Enough copies of <i>Santorini</i> for your class ● Each student has a pencil ● Condensed rules sheet - How to Play Santorini
SPECIAL CONSIDERATIONS	<ul style="list-style-type: none"> ● One round of Santorini game play takes approximately 20 minutes. ● Organize groups according to student needs: Play in pairs, so two on two. Encourage discussion and understanding of the game. Focus on the rules of the game.
LESSON ACTIVITIES	<p>1. This week you'll get a chance to get more strategic in your plays/turns for Santorini – both as you build and then move. There's a lot of math in these games and each week we're going to introduce some of the math ideas. Today, we're going to think about analyzing and pathfinding.</p> <p>What do you think pathfinding means? [discussion] Pathfinding means seeing, creating, and following a path. You can make a path with buildings and have your worker move along the path in Santorini. We're going to look at possible pathfinding for a game in progress: <i>Starter Image</i> (see below).</p> <p>What do you think analyzing means? [discussion] We were just analyzing the moves and builds in the previous pictures ... and it's an important part of getting better at Santorini and at math. Take time to analyze moves/builds with your partner today ... and think about these questions today as you move/build higher:</p> <ul style="list-style-type: none"> ● When did you make your worker first jump up a level? Why? ● When did you first build on level 2? Level 3? Why? <p>2. Reminder of rules, if needed.</p> <p>a) Move a worker to an adjacent spot that's open (same level, up</p>

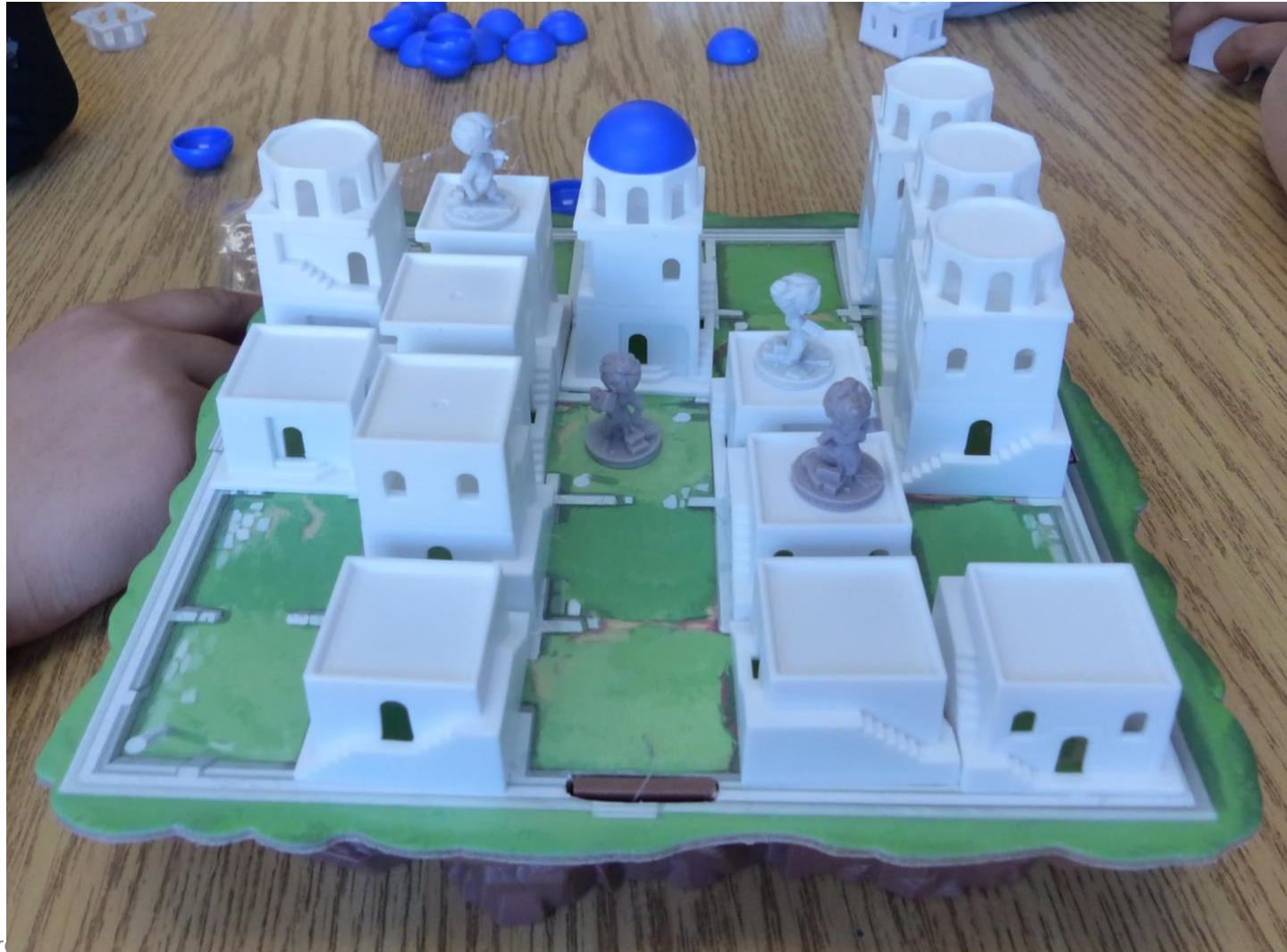
	<p>one level, down any # of levels).</p> <p>b) Place a piece in an adjacent spot to that worker (on any level and on any other pieces, follow order of levels).</p> <p>c) Win by getting up to the third level (or your opponent can't move).</p> <ol style="list-style-type: none"> 3. Divide students into their groups. 4. Hand out the reflection sheet so students know what questions to think about. Encourage them to choose one round of the game and answer the questions (could get through 2-4 rounds in one class). 5. Teacher circulates and prompts student discussion of strategies. Encourage students to ask each other the questions listed on the "How to Play" sheet or prompts below. 6. At the end of the game time, encourage students to complete the reflection sheet (10-15 mins at the end of class.)
<p>QUESTIONS/ REFLECTIONS</p>	<p>Questions for students/prompts:</p> <ul style="list-style-type: none"> ● Are there any starting positions that provide you with an advantage over your opponent? ● Do you assign individual roles or tasks to your workers when it comes to creating a winning pathway? ● Have you created any winning strategies yet? If so, how many turns will it take for you to win? ● Are you more focused on completing your own moves or blocking your opponents' path? ● Why did you choose those starting positions for your workers? ● Where could you move each of your workers? [adjacent spot] ● How did you decide where to move that worker? ● Which pieces can you use to build? Where can you build? [adjacent to worker just moved] ● How did you decide what to build? ● What do you think your opponents will do next? ● What are you going to do to win? ● How did you win? OR How did your opponent win? ● Does this game remind you of any other board games you have played before? ● Have you found any tricks yet? ● What do you want to try next time?

	<p>“For Next Time” Reflection Question: Are there any spots on the board that are more useful than others to have your pieces start in? If so, what makes them important?</p> <p>Other questions to consider:</p> <ul style="list-style-type: none">● What is the best way you have found to win so far?● Does having two workers compared to only having one make the game easier or harder?
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**Who has the advantage in this game? How do you know?
It's white's turn. What *path* do you think white should take
and make? Why?**



**What *path* did white take? How did they “level up”?
Out of all the builds they could do, how did they control
grey’s possible path? What can grey do now?**



Back to this picture! What if it had been grey's turn next? What *path* do you think grey should take and make to stay in the game? Why?



Reflection Sheet: Santorini

Your Name: _____ Team Members: _____

1) Pathfinding by Levelling Up:

Santorini is about making a path for your worker to move to higher levels by building higher levels!

a) Think about a move today when making a path by **jumping your worker up a level** was a great move. Why was it a great move (using drawings and words)?

b) Think about building today when **building higher (level 2, 3, dome)** was a great build. Why was it a great build (using drawings and words)?

2) Analyzing Moves/Buils & Locate Spots on the Board

Analyze the game on the right. It is Grey's turn next.

a) Circle who has the advantage: Grey / Blue

b) Why? What did you see that helped you decide? Explain.



c) You are **Grey**. Draw on the picture where you would **move and build** next:



d) Explain why you think this is the best move and build for Grey to make. Include how to describe the **location** of the move and build
