

Game: *Dimension* (2014) by Lauge Luchau

Standards Alignment:

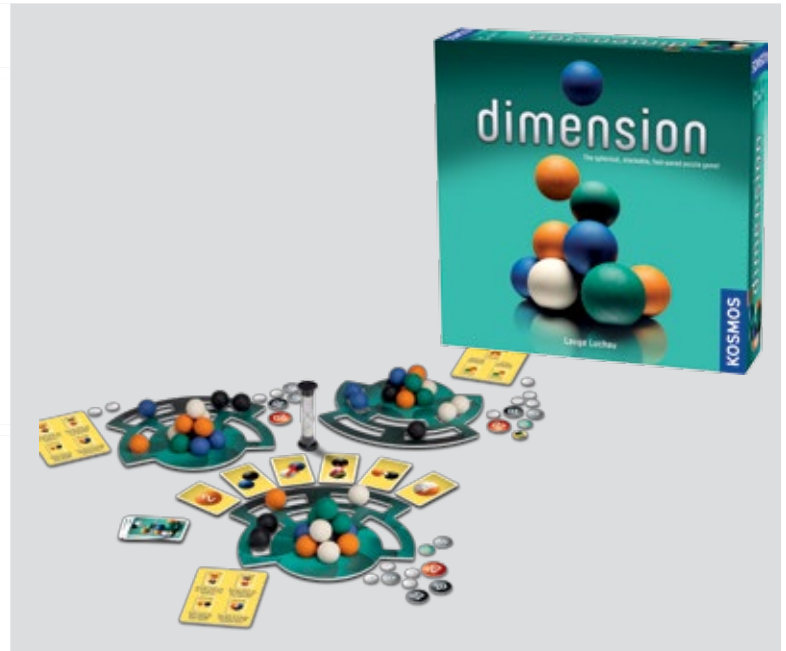
- **Common Core:** Generate and analyze patterns and relationships
 - o Grade 4: OA.C.5
 - o Grade 5: OA.B.3
- **21st Century Skills:** Critical Thinking
 - o Reason Effectively
 - o Use Systems Thinking
 - o Solve Problems

Objectives:

- Learners will use manipulatives in order to generate visual patterns and relationships.
- Learners will use discussion in order to analyze visual patterns and relationships.

Want to learn more about the game?

Watch our video:
<https://youtu.be/4AOj9VSwAog>
 Visit our website:
<http://www.thamesandkosmos.com/index.php/kosmosgames/dimension>
 Full game instructions: http://www.thamesandkosmos.com/manuals/full/692209_dimension_manual.pdf



Game Specifications:

- Ages: 8 and up
- Players: 1 to 4
- Game Duration: 30 minutes
- Round Duration: 5 minutes
- Playing Area: flat surface

Quick Classroom Instructions:

Set up each player tray with three spheres of each color. Reveal six task cards. Flip the hourglass. Before time runs out, place/stack the spheres on player trays in order to complete the six tasks correctly (or as many as possible). If task cards contradict each other, then players must decide which cards to follow. Scoring points is optional (see instructions, p. 2).

Suggestions for Classroom Play: In order to focus learning, consider one or more of these suggestions:

- **Increase complexity:** Teach the game incrementally by adding task card types across three rounds. The instructions (p. 3-4) identify seven task card types. Use Type 1, 2, and 3 for the first round of play (counting, touching). Add Type 4 and 5 in round two (above, below). Add Type 6 and 7 in round three (total numbers).

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- **Preset the decks #1:** Randomizing the deck increases gameplay enjoyment during casual play. However, educational gameplay can succeed even if the teacher presets the decks by complexity level (see above).
- **Preset the decks #2:** Invite students to build difficult sequences of cards for their neighbors to complete.
- **One for all:** Use a document camera (or white board drawing) to provide one set of task cards for the whole class at once.
- **Play with partners:** Assign partners in order to increase engagement and learning. Ask partners to verbalize their critical thinking processes—before, during, or after each round of play. In this way, they will provide additional insight for each other. Take care that dominant or enthusiastic players don't silence passive players.
- **Reverse play:** Invite students to create full stacks of 11 spheres, either randomly or purposefully. Then, students pass the stacks to their neighbors, flip the hourglass, and search for task cards that correctly match the conditions of their stacks.
- **Create task cards:** Invite students to create their own task cards. Then, playtest the new cards in order to evaluate their effect upon gameplay.

Questions for Classroom Discussion: In order to increase learning retention, debrief gameplay with questions like these:

- **Identify patterns:** In your own words, which task cards did you use during this round?
- **Reason effectively:** Inductive thinking begins with a specific example or case in order to build general rules and theories. Deductive thinking begins with general rules and theories in order to explain specific examples or cases. Which kind(s) of reasoning does Dimension require?
- **Analyzing patterns:** How did you decide which task card to complete first, second, third, etc.?
- **Using systems thinking:** If you could eliminate one kind of task card to make the game easier or harder, which would you choose? Explain why.

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- **Solving problems:** When two task cards contradicted each other, how did you decide which one to complete?
- **Generating patterns:** If you were going to build quickly a full pyramid of 11 spheres, which task cards would you want to use most? Use least? Explain why.
- **Generating patterns:** If you were going to create new cards to help players build pyramids faster or slower, what cards would you create? Explain why.
- **Analyzing relationships:** Which pairs of task cards are easier to complete together? Which pairs are harder to complete together? Explain why.
- **Translate patterns:** If you were going to turn this game into a game about numerical patterns instead of visual patterns, how would you do that? 2D instead of 3D? Would it be more fun or less fun? Explain why.
- **Exploring algorithms:** An algorithm is a set of rules or operations that produce a pattern when performed. The task cards of Dimension create an algorithm for stacking spheres in a pattern. Where else do we see algorithms that produce patterns? In our classroom? In your homes? On the street? In your own brains and bodies? Which algorithms are easy to recognize? Which are harder to recognize? Explain why.