

Mystery Boxes Lesson Plan

Teacher
School

Date

SLE # NS.1.3.2: Develop questions that guide scientific inquiry, NS.1.3.3: Conduct scientific investigations individually and in teams, NS.1.3.7: Make and explain predictions based on prior knowledge, OV.1.3.7: Communicate ideas sequentially or organized around major points of information, OV.1.3.8: Support spoken ideas and opinions with examples, evidence, and elaboration.

Objectives:

Content: Students will be able to develop questions that guide scientific inquiry.
Students will be able to conduct scientific investigations individually and in teams.
Students will be able to make and explain predictions based on prior knowledge.

Language: Students will be able to communicate ideas sequentially or organized around major points of information.

Students will be able to support spoken ideas and opinions with examples, evidence, and elaboration.

Assessment: Students will be graded based on their drawing and their investigatory techniques. The teacher will use a rubric to help score the students.

Technology/Materials: Overhead projector, butcher paper or chart paper, dry erase boards (optional), dry erase markers (optional), 1 mystery box per group of 3-4 students. Mystery box made from Altoids tins, with Popsicle sticks glued inside and a small metal ball bearing.

Vocabulary: investigate, predict, analyze, result, hypothesis, and conclusion

Bloom's: ☐ Remembering ☐ Understanding ☐ Applying ☐ Analyzing ☐ Evaluation ☐ Creating

Questions: How many of you have ever tried to figure out what a gift was when you couldn't open the box? What techniques or ways did you try to investigate the box? How did you predict or hypothesize what was in the box? After learning about science, what new ways could you analyze a box if you couldn't see inside of it, and couldn't open it?

High Yield Strategies: ☐ Identifying similarities & Differences ☐ Summarizing & Note Taking ☐ Cooperative Learning
☐ Reinforcing Effort & Providing Recognition ☐ Setting Objectives & Providing Feedback ☐ Generating & Testing Hypotheses
☐ Cues, Questions & Advanced Organizers ☐ Homework & Practice ☐ Nonlinguistic Representations

Instructional Strategies:

Set: The teacher will show students a large box that is wrapped up. He/She will then ask the students to predict what is inside of it. The students will predict a wide variety of objects that could fit inside the box. The teacher can then ask the students to come up with some strategies to figure out what is inside the box without opening it. Students will offer up different ways such as shaking it, smelling it, and even weighing it. Then the teacher will show the students a small toy maze and ask the students if they could figure out how to get the ball to the end of the maze. Most students will say they can. The teacher can then ask, "How could you solve it so quickly?" The teacher will want to guide them towards understanding that if you can see the maze, then you can complete it.

Model: The teacher will show them the small mystery boxes and explain that inside the box is a small metal ball and a series of walls similar to the toy maze. The students will then try to draw and write about what they predict their box looks on the inside.

Guided Practice/Strategies: Ask the students to use the strategies that they had previously come up with in order to help them solve their mystery box. The students can write or draw what they observe and infer about their box. Have the students draw what they believe the inside of their box looks like. The students can use their dry erase boards to draw preliminary pictures before drawing on the large piece of paper. After a few minutes, allow the students to go to other groups and ask for assistance or different strategies to help them.

Intervention Strategies: Assist groups as needed, and leave techniques/strategies listed on board for students to reference.

Accommodations & Modifications (IEPs) Before activity, teacher can form groups to team up different abilities. Teacher can also have students draw their box and strategies instead of writing about it.

Independent Practice/Activities: Have each group draw what they think the inside of their box looks like. They can draw and write about it on small dry erase boards or a piece of paper first. When the group has a good idea of what their box looks like, have them draw it on a piece of chart/butcher paper. Have each group write what techniques or steps they used to solve their mystery.

Enrichment Activities: Allow groups to trade boxes and investigate the box to see if their picture differs from the other groups' picture.

Closure: Have the students journal about the activity and think about the following questions. How could you use the strategies/techniques learned today to help you in your everyday life? If you had to do this activity again, what things would you do differently? What were some of the key things that helped you analyze your box and guided you to predict what it looked like?

Homework: Have students search their home for different boxes that they believe could be mystery boxes. Allow students to share the next day.

Interdisciplinary Items Included:

Estimated Time for Unit: 1 day

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