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EED 480
Professor Belgrad
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Cooperative Learning Lab: Science
Day 1

Big Idea: What foods do ants like best in their environment?

Standards: NGS Life Science K. Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment
CCSS.ELA-LITERACY.SL. K.1
Participate in collaborative conversations with diverse partners about *kindergarten topics and texts* with peers and adults in small and larger groups.
Cross Cutting: 1. Patterns Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.
Engage
I. Formation of Groups: Heterogeneous, students will be assigned a number from 1-6. There will be 6 groups of 4. They will find the tables labeled with their numbers they are assigned. Tables will be labeled 1-6, so students can find their cooperative learning group.

II. Role Assignments: Have students pick pictures out of a hat. For example, an ant's antenna will be materials manager, ant's thorax will be timekeeper, abdomen will be encourager, and legs will be travelers. will determine the role assignments. Lowest will be materials manager, next number will be checker, number after that will be timekeeper, and the highest number will be traveler/encourager. Very creative and engaging plan!

Materials Manager: butcher paper, graphic organizer, crayons, pencil, black marker.
Timekeeper: keeps track of timer on board, makes sure everyone is on task.
Traveler: goes to other groups, if they need help.
Encourager: motivates the other students in their group.

III. Task (See Big idea and Standards):
I will read the book *Ant Cities* by Arthur Dorros. It's about how the ant community works together to take care of the colony. I will ask students, what kind of foods do the ants like to eat? I will have them think of their prior-knowledge about where they have seen ants and the kinds of food they've seen them eat. Students then will identify the different kinds of food ants have eaten, may like, or have seen for themselves at home, a park, or somewhere else at home.

Explore

IV. Time Limits: 30 minutes

Brainstorm: draw pictures on butcher paper or write about the food ants have, will, or may eat from their experience seeing ants eat.

Hypothesize [Predict]: each group member will make a hypothesis on which food/s they *think* ants like best. Or, whole group will come up with one hypothesis on which food/s they *think* ants like best.

V. Social Skills and or Habits of Mind to Engage/Assess: (see below)

Hook: Learning Science | Scientific Method Song | Lyric Video | Kid's Songs | Jack Hartmann https://www.youtube.com/watch?v=ptADSmJCVwQ

What Do Ants Eat? - Lesson for Kids https://study.com/academy/lesson/what-do-ants-eats-lesson-for-kids.html

Explain (teacher)

I will go over the food categories students have come up with on their butcher paper. I will help students redefine their hypothesis to include if the foods are sweet, sour, salty, and bland. I will explicitly explain that the class has two questions to answer. The big idea question and their individual/group hypothesis/prediction.

(Attentive Listening; Disagree with Idea- Not the Person; Flexibility in Thinking; Perseverance; Team Work)

VI Level of Voice: Students will work from a level 2: normal voice table talk, to a level 3: loud proud voice classroom talks.

Explain (students):

VII. Processing--Questions for groups and individual reflections: Did youy think your group members were actively participating? Do you agree on your group's hypothesis? How well do you think your group participation was?

Extend, Elaborate:

Evaluate:

VIII. Assessment <u>Content</u>: Students will be assessed in drawing/writing a minimum of 4 foods ants eat. Did their hypothesis relate to the task about what ants like to eat?

Assessment of Cooperation/Collaboration and Student:

Teacher will assess students by using a Clustered Criteria Checklist. Great selection and design!

Standard: CCSS.ELA-LITERACY.SL.K.1

Participate in collaborative conversations with diverse partners about *kindergarten topics and texts* with peers and adults in small and larger groups.

NGS Life Science K. Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment

Cross Cutting: <u>1. Patterns</u> Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

Criteria/Performance Indicator *Student is:*	Not Yet 0	Some Evidence 1
Collaborating with group members/peers.		
Staying on task.		
Sharing ideas.		
Being active listeners and taking turnings in discussion.		
Being respectful to others ideas, or disagreement on ideas not the person.		
Thinking flexible and perseverance.		
Engaging in team work.		

Students will assess each other by using an Observation Checklist

Rating: + = frequently - = sometimes 0 = not yet

Name of students	Shared ideas.	Helped in drawing.	Helped in writing.	Activelylistened	Respectful when talking
Team member 1					
Team member 2					
Team member 3					

VIIII. Encouraging Energizer: Varied: Team will select it together.

Day 2.

Big Idea: What foods do ants like best in their environment?

Standards: NGS Life Science K. Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment

CCSS.ELA-LITERACY.SL. K.1

Participate in collaborative conversations with diverse partners about *kindergarten topics and texts* with peers and adults in small and larger groups.

Cross Cutting: 1. Patterns Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

I. Formation of Groups: Heterogeneous, students will be able to pick their own group of four. Groups will be formed by students' preference for one of the symbols. Students must work collaboratively to ensure their work gets done.

II. Role Assignments: Have students pick numbers out of a hat. The lowest to highest numbers will determine the role assignments. Lowest will be materials manager, next number will be checker, number after that will be timekeeper, and the highest number will be traveler/encourager.

Materials Manager: distributes paper plate, graphing paper for bar graph, pencil, crayons, black marker, 3-4 food samples.
Timekeeper: keeps track of timer on board, makes sure everyone is on task.
Observer: helps recorder in counting the number of ants is eating each food sample.
Recorder: helps record the number of ants eating each food sample.
Presenter: whole group will present their findings for each food sample.

III. Task (See Big idea and Standards): Students will use black marker to draw lines that make four sides on the plate. They will take a food sample and place it on to a quarter of the plate. They will do this for each food sample. Students will take it outside onto the grass, so ants can eat the food samples. Students will begin to observe the ants.

IV. Time Limits: 20-30 minutes

Students will record the number ants that eat each food sample. If ants take longer to come to the plate, I will bring students in to do other activity, for 30 minutes, and go back outside. While working on other activity, we will make a prediction from their hypothesis about which foods ants will eat *more*.

V. Social Skills and or Habits of Mind to Engage/Assess:

I will have students' pair-share about their hypothesis and prediction. I will prompt students in the type of food categories their samples belong to. From the data they've collected, I will help them answer the question, what foods do ants like best in their environment? Also, answer their own question. Once whole class has shared their groups question, I will model how to fill in their bar graph, to show their results about the number of ants ate each food sample, and to answer the bid idea question and their individual/groups, using the data from their bar graph, as evidence to their answer.

Attentive Listening; Disagree with Idea- Not the Person; Flexibility in Thinking; Perseverance; Team Work

VI Level of Voice: Students will work from a level 2: normal voice table talk, to a level 3: loud proud voice classroom talks.

VII. Processing--Questions for groups and individual reflections: Did your group work together as a team? How do you feel about your prediction? Did you enjoy working with your team while doing the experiment?

VIII. Assessment <u>Content</u>: Students will color/fill in bar graph to show the number of ants ate each food sample. Answer the big idea question using their bar graph. Answer their individual/group hypothesis they made about which food sample the ants would eat more.

Assessment of Cooperation/Collaboration and Student
Self-Assessment of Collaborative Performance
Peer Assessment (Rate Your Mates)
Teacher will assess students by using a Rubric

Criteria	Above & Beyond	On Target	Progressing	Not there yet
Used food samples for experiment	Placed four food sample on the plate.	Placed three food sample on the plate.	Placed two food sample on the plate.	Placed one food sample on the plate.
Recorded the number of ants for food samples	Recorded the number of ants on all four-food samples.	Recorded the number of ants on three food samples.	Recorded the number of ants on two food samples.	Recorded the number of ants on one food samples.
Answered the big idea using bar graph when writing a sentence.	Proficiently uses bar graph as evidence to writing their response.	Intermediately uses bar graph as evidence to writing their response.	Novicey uses bar graph as evidence to writing their response.	Very basic knowledge using bar graph to writing their response.
Answered their own individual/group hypothesis, using data, when writing a sentence.	Answered in a complete sentence with details. Response fully corresponds to data collected.	Answered in a complete sentence and response corresponds to data collected.	Answers is vague and fairly corresponds to data collected.	Answer is incomplete and does not correspond to data collected.

Students will assess each other by using an Observation Checklist
Rating: + = frequently - = sometimes 0 = not yet

Name of students	Shared ideas.	Helped in recording.	Helped in bar graph.	Active listening.	Respectful when talking
Team member 1					
Team member 2					
Team member 3					

VIIII. Encouraging Energizer: Varied: Team selected

Based on the book: *Blueprints for Achievement in the Cooperative Classroom*. Bellanca and Fogarty, 2001.