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**Cooperative Learning Lab on the Plant Cycle: Science**

**Big Idea:** Students will be able to recognize the life cycle of a plant as well as the needs to sustain a life of a plant.

**Standards**: The lesson being taught to the students will be according to the grade level being taught. Since we have different grade levels among our group team, we will go into specifics of what each of our grade level students will do. The following are the standards for each of our grade level:

* (Grade K) NGSS LS1.C: Organization for Matter and Energy Flow In Organization – All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow.
* (Grade 1) NGSS LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.
* (Grade 5) NGSS LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.

I. **Formation of Groups:**

* The students will form groups by using a human graph depending on their knowledge on knowing the 5 needs of a plant/ what a plant needs to survive. Students will be placed in a heterogeneous group. So it will contain 2 to 3 students who know a lot of information about plants and who know little information about plants. Students will be divided in groups containing 4-5 members

II. **Role Assignments**: Beginning with the Checker all roles are assigned to the right (clockwise). Although each student will have a role assignment. All of them will contribute to the worksheets, graphic organizers, and interactive experiments that they will be given. These role assignments are an extra responsibility that they will be doing. Students will be given directions as to what each role assignment will be doing before they are assigned a role. This way students have a clear understanding as to what their role will be.

1. ***Materials Manager/ Encourager***:

* Student will be collecting the materials that will be needed for their group. At the same time, they would be positively encouraging their group members throughout the process. They would encourage their members to listen to one another before giving an opinion. They would then complement each of their member’s idea whether it was a good or bad idea. This way each member in the group is given a compliment throughout the lesson. At the end of each lesson session, the student is responsible for collecting any of the remaining materials and/or creations they have done to place it at the teacher’s table.

1. ***Checker/Timekeeper***

* Student will be responsible for making sure that the group is focusing on the lesson and making sure that the group is remaining on task. The checker will have a checklist of what will be expected to be complete during this day’s activity. They will observe to see that the other team members are on task. They will make comments about how the group members are doing throughout the activity. They will also be in charge of managing the time. They will alert the group of how much time they have left.

1. ***Recorder***

* This person will be responsible to make sure that they are writing down the information that is shared by the teacher and members. This way they will be able to keep record of what has been discussed and shared throughout the lesson and activities.

1. ***Observer/Reporter***:

* This person will be responsible to observe what the members are doing. They will also have a checklist that has the responsibilities that each member needs to accomplish (ex: listening to one another, participating in the lesson, giving opinions/thoughts, etc.). At the same time, the student will be reporting what has been accomplished. They will report their results at the end to the teacher.

1. ***Other: Traveler/Spy--Can be the checker***

* This person will be responsible for going around the room and looking at how other groups are doing. This way they are able to get ideas from other groups so that they can share it with their own group. At the same time, students will be able to find a variety of ways and/or strategies they can use that were inspired from other groups. They would not copy the other group, but instead make it in a way that is for their own group.

III. **Task (See Big idea and Standards)**

1. The Big Idea for each grade level is for them to recognize the life cycle of a plant, the needs for a plant to live, and the sustainability of the plant. Although there are three different grade levels that each of our group members are focusing on (K5, 1st, and 5th grade), they will all meet the points of each aspect of the plant.
2. The objective/goal for the students is that students will be able to understand and recognize the aspects of the plants. Each of the objectives/goals will be demonstrated in the lesson plan for each grade level.
3. The ultimate task is for the students to complete worksheets and activities that are determined for their grade level. This will be reflected on the lesson plans.
4. Delivery of Instruction (***PLEASE REFER TO CSUN LESSON PLANS TO SEE DIFFERENTIATION OF EACH TEACHER AND GRADE LEVEL.)***
   * The class will begin with pictures displayed on the ELMO. The pictures will be of plants and images pertaining to plants as well (e.g., flowers, sprouts, soil, water, sunlight, air). With the pictures displayed on the board, the students will be given time to turn and talk to their table group to try to decipher what the Science lesson will be about.
   * After, the topic of Plant Life is revealed, the students will be told the objective of the lesson, which will be being able to recognize the life cycle of a plant as well as the needs to sustain the life of a plant.
   * ***Activities will be introduced and completed determined by the grade level.***
   * ***PLEASE REFER TO CSUN LESSON PLANS TO SEE DIFFERENTIATION OF EACH TEACHER AND GRADE LEVEL.***

IV. **Time Limits:** The overall lesson will take 60 minutes

* The first engagement activity where students discuss possible ideas of what they will be creating will take about **five minutes**. This will give students enough time to look over and connect how the images displayed are similar.
* The second portion of the lesson will be introducing the lesson topic as well as creating the human graph. This will take about **five minutes**.
* The body of the lesson will differ on grade level. ***PLEASE REFER TO CSUN LESSON PLANS TO SEE DIFFERENTIATION OF EACH TEACHER AND GRADE LEVEL.*** This part of the lesson will take **40 minutes**.
* For the closing of the lesson, the Materials Manager will return all materials to the teacher. The teacher will conduct an informal assessment by providing an exit ticket to see if the objective was met. This part of the lesson will take **10 minutes**.

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

* Positive communication (overall)
* Disagree with the idea-not the person (overall)
* Sharing (team activities)
* Flexibility in thinking (team activities)
* Attentive listening (during guided instruction)
* Praising others- no put downs
* Perseverance

VI **Level of Voice:** (Classroom Level 2 – Normal Voice Table Talk)

* Students will be using a classroom level 2 - normal voice for teaming activities.
* Students will also be using a classroom level 2 voices during the think-pair-share activities.
* During teacher instruction, the classroom level should be at a 0 - no talking, so that students are able to hear the important information provided concerning plants. Individual students who are responding to questions, participating in discussion, or presenting their team’s flag to the class should think about/try to speak at a level 3- strong speaking voice.

VII. Processing--Questions for groups and individual reflections:

* We will have prepared a worksheet with a list of questions that relate to the science lesson of plants. This will be their form of exit ticket to show us what they understood from the content being taught. At the same time, it will reflect how much they were able to retain information. Each grade level will have their own form of exit ticket.

VIII. **Assessment Content**:

* Assessment of Cooperation/Collaboration and Student
  + The teacher will circulate the classroom with a checklist to see if students are meeting objective. ***Each checklist is different depending on the grade level expectation***.(***PLEASE REFER TO CSUN LESSON PLANS TO SEE DIFFERENTIATION OF EACH TEACHER AND GRADE LEVEL.)***
* **Self-Assessment of Collaborative Performance**
  + Once all the presentations and assessments have been completed, the students will have a self-reflective journal entry where they are able to assess themselves in how they contributed to their group and content.
  + Students will be able to pick any one of the following questions to answer so that they will be able to self-assess themselves:
    - What did I contribute to the group?
    - How did I work with my members?
    - Did I put in my best effort?
    - What would I have done differently?
    - What part of the lesson did I enjoy? What part of the lesson did I not enjoy?
* **Peer Assessment** (Rate Your Mates)

**Rate Your Mates!**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **What did we do?** | **Student 1** | **Student**  **2** | **Student**  **3** | **Student**  **4** |
| **I listened to my team!** |  |  |  |  |
| **I solved conflicts reasonably** |  |  |  |  |
| **I respected everyone’s ideas** |  |  |  |  |
| **I did my best work!** |  |  |  |  |
| **I completed all tasks!** |  |  |  |  |

VIII. **Encouraging Energizer:**

* Each group would have an encouraging energizer that they have picked beforehand. Once the student and group members have shared what they did, the rest of the class will do the encouraging energizer.

IX. **The 5-E Framework**

* Engage
  + To *engage* the class with the lesson before the lesson is specifically addressed, the hook will be implemented to capture student interest. Students will view pictures of materials and turn and talk to their partners to guess the topic.
  + Students will receive a broken-down explanation to understand the life cycle of a plant as well as the needs. This will be done differently by every grade level, but will follow the format of “guided” to independent practice.
  + For student assessment, the checker/observer will fill out the “Rate Your Mates”. This is to see how collaborative the students were in their group and to push on improvement with communication. With an encourager, this will push students to strive to do well collaboratively as well as recognize what steps it takes to be a great team player.
    - K/TK The checker/observer will fill out the checklist and bring it to the teacher, where they can explain why they did/ did not give certain students checklists.
    - 1st: Students will use the checklist provided and turn in with the rest of the materials.
    - 5th: Students will use the checklist provided and turn in with the rest of the materials.
  + For student reflection, when the students have completed their work, they are to refer to the reflective questions on the board. This self-reflection will help students reflect on the work they did and the collaborative effort they put into the activity.
    - K/TK Students will reflect orally as a turn and talk activity done when the group is complete with their activity. As a group they will discuss personal reflections and group reflections.
    - 1st: Students will write in their daily journals based on the reflective questions on the board. This is an individual activity to be done when the students finish the independent work of the lesson.
    - 5th: Students will self-assess the work and effort they have put into the activity. They will write three sentences for every question. This will push them towards actual self-assessment, and self reflection. There will also be one question that asks how their group members were, they will also answer this question in 3 or more sentences. At the end of their reflection time, we will reflect as a whole class; “What did you like about the lesson?”, “What did dislike about the lesson?”, “If there was something you could change, what would it be?”, “What would you like to learn more about?”.
    - ***PLEASE REFER TO THE LESSON PLANS TO SEE THE VARIETY OF CONTENT THAT THE STUDENTS WILL BE ABLE TO REPRESENT.***
* Explore
  + To get students to explore the topic, the life cycle of a plant, students will think about what necessities we (humans) need in order to survive. After some thinking time, students will pair-share their thoughts. This allows students to get their thoughts out before speaking up to the entire class. Also, allowing students to connect themselves to the topic being taught, students are more likely to retain and connect the information.
    - K/TK: Students will think about what they need everyday in order to survive. Although some students may mention some things that aren’t considered a “necessity” to everyone, this will allow discussion to occur in the classroom and teach them what “necessities” are truly needed in order to survive. Then they will be shown a picture of a dying/wilted plant and asked why they think the plant looks “sad” or unhealthy. This will then create a transition into the lesson.
    - 1st: Students will be shown two pictures, a healthy plant and a dying/unhealthy plant. They will then be prompted on what the difference is between the plants. This will allow students to refer to their prior knowledge and make connections with what will be taught. Once students have had enough time to think, they can share their thoughts will their table partners and answer the question “What is the difference between both plants?” This question can be answered in a variety of ways, but it will allow whole class discussion and create a transition into the lesson.
    - 5th: Students will observe plants that have been treated differently. There will be 4 plants (a healthy plant, a dying/unhealthy plant, a pot with a seed and completely dry soil, and one plant tightly covered in cling wrap/ clear wrap/ saran wrap) that the students will observe, group by group. Students will work collaboratively and answer the question “What is the difference between all the plants?” After some discussion, students will all come back together and share their thoughts. This will then create a transition into the lesson.
* Extend/Elaborate:
  + To *extend,* we will integrate this lesson with another subject. This can be related to physical education by having students become the plant. As student start off from a seedling and mature to an adult plant, they will be asked to do a certain tasks based on the stations.
    - Each grade level will have different variations of these stations based on their student’s ability level along with the spacing at their school.
      * K/TK:
        + First station, students will start as a seed and then they will walk quickly to the cones that are zig zagged. This will represent the roots of the plants growing.
        + Second station, students will collect “water droplets,” which are the bean bags and deposit them in the buckets.
        + Third station, there will be three mini stations set up.

First mini-station, they will do five crunches (represent the baby plant)

Second mini-station, they will do five high-knees in place (represent the medium plant)

Third mini station, they will stretch out to be as big as they can be (represent the adult plant)

* + - * + Once students finish, they will be able to start all over again.
      * 1st:
        + First station, students will start as a seed and then they will walk quickly to the cones that are zig zagged. This will represent the roots of the plants growing.
        + Second station, students will collect “water droplets,” which are the bean bags and deposit them in the buckets.
        + Third station, there will be three mini stations set up.

First mini-station, they will do five crunches (represent the baby plant)

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Third mini station, they will stretch out to be as big as they can be (represent the adult plant)

* + - * + Once students finish, they will be able to start all over again.
      * 5th: Students will be given materials to prepare a plant for potting with their group. Students will be using their observations of the four plants in the classroom, to decide where they will plant their potted plant. Students will be told to keep record of the plants growth based on the necessities they learned plants need in order to grow and survive.
        + Students will choose what seed their group would like to grow.
        + Decide where they will post their plant.
        + Keep record of their plant type, where it is posted, and when they planted it.
        + This allows students to explore how a plant grows and what is needed for a plant to grow.
* **Explain**:
  + To *explain*, each group will have an opportunity to share what they have done collaboratively. This gives them an opportunity to present in front of the class what they have learned from the content and one another.
    - Each grade level will have their own worksheets and activities that they will be able to do.
      * K/TK: Students had the opportunity to learn the life cycle of a plant by doing a worksheet where they need to sequence the cycle of a plant. As a group, the students needed to collect the materials to help one another in planting a plant. They worked collaboratively as a group, but they each individually planted their own plant.
      * 1st: Students had the opportunity to learn about the life cycle of a plant by sequencing each step. As a group and individually, students learned different kinesthetic movements that would help them learn about the plant life cycle.
      * 5th: Students will share their observations with the class and explain why they believe the plants are in their states. Students will then create a flow map, collaboratively, illustrating how their group thinks a plant grows. Students will be asked to think from plant-to-seed based on their observations of the plants in the classroom. Having students deconstruct the growth of the plant will allow students to refer to their prior knowledge on the topic.
    - ***PLEASE REFER TO THE LESSON PLANS TO SEE THE VARIETY OF CONTENT THAT THE STUDENTS WILL BE ABLE TO REPRESENT.***
* **Evaluate**:
  + Students will be assessed in three areas: collaborative/individually, self, and peer. These 3 areas will show how each student was able to contribute as a member to their team and how they individually learned.
    - Collaborative/Individual Assessment: The teacher will roam around the classroom with a checklist/commentary clipboard. She will be observing how each student is doing individually as well as how they are contributing to the group.
    - Self-assessment: The student will be writing a journal entry where they will be answering one of the questions (refer to section VIII: Assessment Content) to reflect on what they have done to contribute to the group and what they have learned individually.
    - Peer Assessment: The checker and observer will be the ones in charge of the peer assessment. They will each have a checklist where they will be able to rate how each of their members in the group did. They will have a checklist where they will put a checkmark to show if their classmates were able to accomplish the certain task (refer to section VIII: Assessment Content-Peer Assessment).