6-8 years

pri-sci-net

inquire
investigate
evaluate
connect

Science Content:
Life Science

Target Concepts/Skills:
Living Organisms, Ants

Target Age group:
6 - 8 years

Duration of activity:
3 hours

Summary:
Students express what they know about ants, as a type of living organism. They ask questions about what they would like to find out about ants. Then they observe real ants in the schoolyard and check which of their questions were answered. The children then create a class poster about ants and their characteristics or make individual drawings. For questions that have not been answered by observation, students are given the opportunity discuss how to answer them and to conduct experiments regarding for example what ants eat. Finally the children compare their predictions with their actual observations.

Objective:
By the end of the activity children should be able to:

- Gather information about ants by observing them in their natural habitat;
- Set questions which can be answered through an investigation;
- Execute an investigation by recording data, reach a conclusion and share it with others;

Resources:

- Aesop's Fable 'The ant and the Grasshopper'
- Student sheet 1
- Photo of an ant magnified;
- Five of six different foods and drink that students will suggest e.g. orange juice, milk, cookie, cake, marmalade, etc.
- Kitchen tissue or piece of paper, or other type of material to place food samples on for ants.
- Student sheet 2

Ants

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Lesson plan (with inclusion of teacher notes) - Description of activity

(describe underneath what children have to do and how the teacher guides the activity)

Activity 1 (10 minutes) DRAW AN ANT. Teacher reads the Aesop's fable "The ant and the grasshopper". Alternatively s/he can ask students what they know about ants. Have children express what they know about ants by drawing a picture of an ant. Then ask students how we can tell if the drawing is correct. Students give various answers like look in a book, search the internet, even to observe one ant.

Activity 2 (20 minutes) COMPARE WITH REAL ANT or MAGNIFIED PHOTO OF AN ANT. Tell students the rules of how we handle living organisms. (never harm them, never step on them, never touch them, simply observe from a distance) Take students into the schoolyard. Have them look around and locate ants. Have them observe ants in groups and discuss how ants look like. Then go back into the classroom and have them in pairs discuss each other's drawings. Alternatively students can compare in pairs their drawings with a photo of an ant, printed from a freely available source on the Internet.

Activity 3 (50 minutes) PLAN AN EXPERIMENT. Ask a question about the ants and plan an experiment to answer it. For example what do ants eat? Do ants like sweet or savoury foods? Some students say what they have seen ants eating, or what they think ants eat. Make a list of 5 different foods. Divide students in teams of 4-5. Place small quantities of each type of food on a piece of paper. Ask each team to place food samples around in the schoolyard. Leave for 15 minutes. Students can have a break and play or rest. Later the students note how many ants were attracted to the different food types.

Activity 4. (30 minutes) RECORD DATA. PRESENT TO THE CLASS. Which samples were popular with the ants? Record data on Student sheet 2. Take students inside the classroom. Have each team discuss their findings and tell the rest of the class.

Activity 5 (10 minutes) asking students to reflect of what they did today and what they learned. By telling students that this is one way of how scientists work in real life. They gather information about living organisms that we later read in books or the internet.

1. Engage (Forming hypotheses)

Decide which question to investigate (= *the challenge*)
What do children already know? What are their ideas? (*make the question to investigate meaningful for the children*)

Teacher reads Aesop's fable the ant and the cicada. The story serves to focus the children's attention to ants. Then asks the students what they know about ants, and draw one ant as accurately as you can.

2. Inquiry

Have students observe ants in real life (in the school yard) and compare what their drawings show compared to real ants or a photograph of an ant in magnification from the internet. Tell them that one way of getting information about living organisms is by observing them in their natural habitat.

Then ask students to think of what they would like to know about ants or ask students, for example what ants eat and
have them think how they are going to answer this question.

Have them choose different types of food or drink, place food samples on separate pieces of paper , divide students in teams of 4-5, have them distribute food around the schoolyard, leave it for 15 minutes. Students then go back to their samples and record which foods were eaten by ants and which not. Have them complete Sheet No2. Inside the classroom, each team tells the rest of the class their findings.

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CAPACITIES

3. Evaluation (Evaluating evidence)

Conclusion: use data collected by the children to construct knowledge and generate evidence.
Demonstrate understanding of concepts and/or ability to use inquiry skills

Have students reflect on what they did today and what they learned.
Point out that in many cases the outcome us never absolute but that at most, preferences are provided.

Teacher Notes

Insects are the largest group not only of animals but also of all categories of living organisms known to date including at least 750,000 species. (for comparison, all known mammals are 4000 species)They have complicated life cycles that cannot be appreciated by non-biologists.

The representation of animals in School textbooks is usually biased towards 4-legged land mammals, and leaves little space for students to study other types of living organisms. Moreover, popular culture (kids' literature, Hollywood films, animations) even religion, attribute and/or perpetuate anthropomorphic even horrific characteristics to insects. Although some insects can cause damage to man (agriculture, allergic reaction, poisonous bite etc.), they play very significant roles in the earth's ecosystems.

It is of paramount importance to allow students of young ages to explore the living organisms of their nearest environment, like for example the schoolyard, not only to acquire basic biological knowledge but also to allow them to appreciate the diversity and unity of life. Ants are social insects with at least 22,000 known species. They live everywhere except in Antarctica.

Information about ants can be found on several websites on the internet, for example en.wikipedia.org/wiki/Ant.

The internet supports educational purposes through providing access to photographs of ants which can be used to compare with students' drawings. Please find below one such photo and print as many you need for the students.

Resources: The Ant and the Grasshopper story:

In a field one summer's day a Grasshopper was hopping about, chirping and singing to its heart's content. An Ant passed by, bearing along with great toil an ear of corn he was taking to the nest.
"Why not come and chat with me," said the Grasshopper, "instead of toiling and moiling in that way?"
"I am helping to lay up food for the winter," said the Ant, "and recommend you to do the same."
"Why bother about winter?" said the Grasshopper; "We have got plenty of food at present." But the
Ant went on its way and continued its toil.
When the winter came the Grasshopper had no food and found itself dying of hunger - while it saw the ants distributing every day corn and grain from the stores they had collected in the summer.
Then the Grasshopper knew: It is best to prepare for days of need.

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Special considerations

Before conducting the activity the teacher should look around the schoolyard and locate ants to direct students to find them. The best way to observe a living ant without harming it would be to place it in a small plastic petri-dish or similar types of container, one that biology labs usually use for tissue culture.

Please take the opportunity and tell students rules of how to handle living organisms (do not touch, do not harm, observe from a distance)

Check from the internet that ant species found in your country are harmless in case a student touches them by accident. Some students have negative feelings about certain types of living organisms. Help these students overcome their fears or anxieties regarding ants, make them feel safe and comfortable with the experiment. This activity about ant does not require one to touch the ants.

Be prepared to answer students about why their mothers exterminate ants in their homes.
Photograph of food samples on pieces of paper, liquids in paper cups, in the schoolyard:

(If it is a windy day, the food samples will be blown away and the students will not be able to record any data and complete the activity.)

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Student sheet 1

Activity : Ants
Student name:

Class:

Please draw an ant in the space below

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Student sheet 1

Activity : Ants
Student name:

Class:

Leave the food samples in a certain place in the schoolyard. Leave for 15 minutes. Go back to the food samples. Observe

Which foods do the ants eat? Which foods they like?
Put an X in the appropriate box of the table:

Type of Food	Do ants like it?
Orange Juice	
Cookie	
Cake	
Marmalade	
Others:	

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