Discovering Nurdles

In this hands-on investigation students will explore the properties of nurdles and other debris that can be found in the environments near shorelines, rivers, or streams. Once they have rotated through multiple stations, they should be able to identify a nurdle.

Audience: K-1

Student Outcomes:

- The students will be able to sort a set of objects (including Nurdles) based on their observable properties such as shape, color, size, texture and sink or float.
- The students will be able to identify a nurdle and understand what they are used for.
- The students will be able to identify and explain the problem that Nurdles create and propose a solution.

Teacher Background:

[Nurdle Patrol Website]
[The Great Nurdle Hunt]
[Nurdle Fact Sheet]

Materials:

- Nurdles
- 4-6 trays or shallow pans with a small layer of sand
- Sand
- Pebbles
- sticks
- Small plastic container (be sure it is clear)
- Water
- Gloves (optional)
- Student Handout
- Pencils for recording
- Chart paper titled “Plastic”
- Sticky Notes

Teacher Prep:

The teacher will need to prep 4-5 different stations depending on the needs of your classroom. At each station the students will be sorting a set of objects based off a predetermined property.

Stations 1-4 will include shallow tray of sand, pebbles, sticks, nurdles or any other teacher selected objects to include. Tools to be included at each of these stations are magnifying lenses and tweezers.

Station 1 will sort by color
Station 2 will sort by texture
Station 3 will sort by shape
Station 4 will sort by size
Station 5 will need to include a small plastic container filled halfway with water. You will also need pebbles, sticks, and nurdles. At this station, the students will test the sink or float capability of the objects at this table.

Alternative:
If your students are not able to rotate due to Covid restrictions or any other reason, then these investigations can be stationary. Students can stay at one table and perform the given tasks with the same items. You will need to include a small plastic container for each group with water if this is the case.

Introduction:
Begin by asking the students the following questions. What things can you think of that are made of plastic?
Students will write down (or draw) 1-3 things that they came up with. When they have finished, they will go and add them to the chart paper titled “Plastic”. Be sure this paper is in a visible place, preferably somewhere at the front of the room. When all students have finished, review all the different things that the students came up with.

Procedure:
1. The teacher will begin by reading aloud or showing the read aloud “A Planet Full of Plastic” to the students. Then the teacher will introduce what a Nurdle is, what they are used for and what problems they are creating for environments. Hurdles with Nurdles - YouTube 0:28 to 1:00
2. The teacher will explain to students the stations that they will be visiting and the different properties that they will be looking at for each of those stations. This is also a great time to review lab safety and expectations.
3. At each station the students will use the tools provided to help them to pull out the different objects that they find in the sand and sort them based on the property that has been given to that station. Allow students 6-8 min at each station.
4. Once students have sorted the objects, they will use their student handout to locate the correct station number. They will draw a picture of their observations (sorting) and write down anything that they noticed about that sort.
5. The students will then rotate to the next station. They will repeat the process but will sort based on a different property.
*Note: As students move through the different stations, they should be able to see how Nurdles are similar and different to other items found on beaches or near rivers and lakes. They should be able to identify a Nurdle out of those items once all stations have been visited.

6. Once the students have made their way through all the stations they will share as a class and discuss what they noticed.

Questions/Discussion:

Listed below are some sample questions to help guide the class discussion.
What do Nurdles remind you of?
Why is it important to know the properties of different objects?
Do all Nurdles have the same color?
Are there other objects with the same texture as a Nurdle?
What did you notice about the size of Nurdles?
What other objects besides rocks do you think we would find shaped like a Nurdle on or near the water?
Do you think all Nurdles float? Why or why not?
Now knowing what you know about Nurdles, what problem or challenge do you think this would create for animals that live near the shoreline or in the water?

Extensions:

What can you do to help?

Nurdle Patrol Survey Training Video

STEM Extension- Engineering:

Think of the problem you discovered about Nurdles and how they affect the environment. Using the engineering paper provided. Sketch a model of an invention you could create to help solve this problem. What parts would it need? How will it work? There are no limitations on your design.

Social Studies- Citizenship:

Read “Old Enough to Save the Planet” to your students. Have them think about what you know about being a good citizen. Good citizens think about ways they can help and improve the communities in which they live and work to make changes. What could you do as a good citizen to help your community that you live in solve this problem? Have your students write and/or illustrate their response to this question.

Examples of ways to be a good citizen might include joining the efforts in the Citizen Science Project to help scientists record and report data. Help clean up polluted areas. Write to your government to create new laws,

Math/Social Studies:

Head on over to https://nurdlepatrol.org/Forms/Home/ . Select the button that says “View Data”

Have the students observe the Map shown on the page. Talk about the legend that is given and how it helps us interpret data. Ask the students what they think the dots on the map represent. Clarify any misconceptions. Students can locate areas of land and bodies of water. Ask the students what they notice in the areas they live in compared to other areas on the map.

Suggested Read aloud books:

Pollution

A Planet Full of Plastic

No More Plastic- Alma Fullerton

Old Enough to Save the Planet

Ecosystem/Food Chains

This is the Sea that Feeds Us

STEM/Design/Engineering

Iggy Peck Architect

What Do you Do with an Idea?

Additional Resources

NOAA Ocean Service: Nurdle Patrol

I Joined Nurdle Patrol

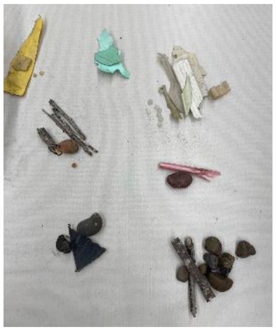
Mission Aransas Nurdle Patrol Student Project

4Ocean

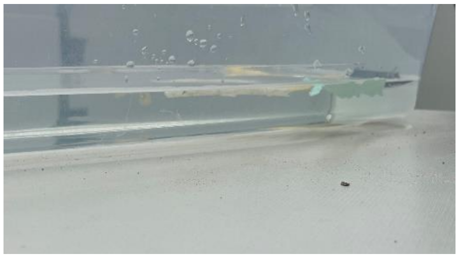
Sample of what it might look like and sorting possibilities:

Tray of sand with objects:

Sorting possibilities:

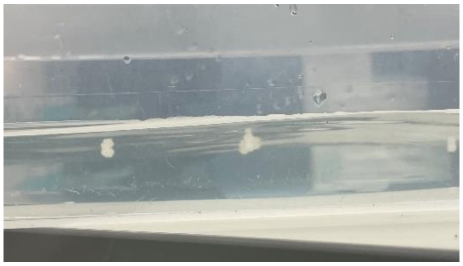


Sink or Float:



Plastic

Pebbles



Nurdle

Sticks

Station	Draw a picture of your observations.	What did you notice?
1 **Color**		
2 **Texture**		
3 **Size**		
4 **Shape**		
5 **Sink or Float**		

Station Labels

(These can be run off in color so students can see the station number better.)

1 **Color**	**2** **Texture**
3 **Size**	**4** **Shape**
5 **Sink or Float**	**6**
