



Hurdles with Nurdles

February 2021

Description

Plastic plays an important role in global society, but do we really understand how plastic products are created and the impact plastics have on the environment? In this three part lesson, students will take a closer look at nurdles, the starting point of all things plastic, investigate the pros and cons of plastic production and use in comparison to the environmental impact, and propose ways to fulfill the role of plastic without the environmental impact.

Audience:

Version A: 5th-8th grade students.

Version B: 7th-9th grade students.

Can be adapted to fit other levels (contact MA-NERR Education Sector for suggestions)

Duration

Version A- 40 minutes, plus homework/ second day in class work.

Version B- Flexible. Meant to be done over a few days or weeks.

Learning Goals & Objectives

- Students will be able to define nurdles and describe the role of nurdles in society.
- Students will debate the pros and cons of plastic production in relation to the environmental impact created throughout the process (from production, to use, and final disposition).
- Students will propose a plan to fulfill the role of plastic in society without the impact to the environment.

Materials

- Nurdles- one jar per table/ group
- Student Question Sheets- one per group for each section
- “Hurdles with Nurdles” video and viewing capability
- Nurdle news articles- accessible to all groups
- Marine debris fact sheets- accessible to all groups



Program Overview

Part 1: “What is a nurdle?”

(Recommend 5-7 minutes for Version A. More time is encouraged for Version B)

Place a container of nurdles on each table for the group to observe. Using the Part 1 Student Page, ask the students to record their observations. Questions included on the page are as follows:

What do you notice when you look at the nurdles?

What shape are they? What do they feel like? Are they all the same color?

Have you seen anything that looks like the nurdles before? What were they?

What do you think nurdles are made of?

Have students come back as a class and share out some of their findings (maybe one answer per table). *Optional: Teacher (uses Nurdle Fact Sheet for teachers for guidance) will guide/facilitate students so that they reach the understanding that nurdles are plastic pellets.*

Watch “Hurdles with Nurdles” from 0:28 to 1:00. Students will learn that nurdles are plastic pellets used to create plastic products.



Part 2: “Is producing plastic worth the environmental impact?”

Pass out the Part 2 Student Page, nurdle news articles, marine debris fact sheet, and any other resources you find appropriate for your students (including digital devices, additional news articles, etc.). Students will work in groups to discuss the pros and cons of producing plastic. They will utilize the provided resources, see below, (and others, if time permits) to support their arguments.

Part 2A: *Recommend 30 minutes.*

Recommended resources:

- NurdlespillOnline.pdf (or Nurdlespill Print Pg 1.png and Nurdlespill Print Pg 2.png)
- 2018_Plastics_Fact_Sheet.pdf
- Marine Debris and the Economy Fact Sheet.pdf
- Microplastic Marine Debris Fact Sheet.pdf

After group discussion, students will present their findings to the class. This can be done in a variety of ways, and is up to the teacher’s discretion. If time permits, it is recommended that teachers facilitate a discussion between the groups. If time does not allow for detailed discussion, the groups can present their findings to the class one at a time with or without the option for other groups to ask questions.

Part 2B: *Recommend a minimum of a full class period.*

Recommended resources:

- NurdlespillOnline.pdf (or Nurdlespill Print Pg 1.png and Nurdlespill Print Pg 2.png)
- Historic Pollution Settlement Awards \$1 Million to Nurdle Patrol_PDF.pdf
- Nurdle_Patrol_Kits_Victoria_Advocate.pdf
- Nurdles are the biggest pollution disaster you’ve never heard of — Quartz.pdf
- 2018_Plastics_Fact_Sheet.pdf
- Marine Debris and the Economy Fact Sheet.pdf
- Microplastic Marine Debris Fact Sheet.pdf

After group discussion, students will present their findings to the class. This can be done in a variety of ways, and is up to the teacher’s discretion. It is recommended that students have time to present their findings, which are recorded on a running list. After all groups have presented, the students will then debate the findings using evidence from the resources given.



Part 3: “How can we fulfill the role of plastic in society (medical field, consumer products, etc.) without the environmental impact?”

This is meant to be open ended. Teachers are encouraged to promote creativity, with evidence to support the suggestions (i.e. If a student, or group, proposes replacing plastics with another material that has not been created yet but they provide research on the potential ingredients and justification for the choice then they have fulfilled the request of the question). This section is designed to empower students to think critically and creatively.

Part 3A: *Recommended as a homework assignment with follow up discussion. Can also be a second day in class independent/ group work.*

This portion of the lesson can be fulfilled with an essay, group presentation, or other deliverable that meets the educational goals of the teacher. For example, some grade levels emphasize public speaking while others emphasize writing reports. Teachers are encouraged to assign the deliverable that meets the state and national standards being taught at the time.

Part 3B: *Recommended as a long-term group project. Students should be given ample in class time and resources to fully discuss the question and create a deliverable of their findings.*

This portion of the lesson is designed to be fulfilled with a group presentation, followed by class discussion. The group presentation can be in any format including PowerPoint presentation, scientific poster session, product pitch, video, or any other shareable format. Please include time for class feedback and discussion of ideas.

Optional Extension(s)

- “Hurdles with Nurdles” video
 - This video can be shared with students to watch in class or at home after completing the lesson.
- Nurdle Patrol Presentation Video
 - This video will tell students about the current efforts to collect nurdles, record the data, and make positive changes in the environment.
- Nurdle Patrol Rack Card
 - It is encouraged to share this rack card with parents (printed or digitally) as a way for the family to get involved in the Citizen Science project.
- Field Trip
 - If applicable, we encourage teachers to take students into the field to conduct nurdle patrol surveys. Students will be able to upload their data to the nurdle patrol website and be part of the Citizen Science project.
- Nurdle Data Analysis
 - Teachers and students can access the data on nurdlepatrol.org (<https://nurdlepatrol.org/Forms/Home/>) and use it in a variety of ways.
- Marine Debris Collaborative
 - Teachers and students can access information on the regional collaboration of marine debris collection/ study/ and education. (<https://marinedebris.noaa.gov/your-region>)

