

NURDLE HURDLE RACE

OUTDOOR ACTIVITY

Objective

See how nurdles (tiny plastic pellets) spill during transportation and why containing them is difficult.

TIP: This game is messy! Play outdoors or on a surface that's easy to clean.



Pre-Game Questions

1. What are ways plastic transported globally?
2. How can we reduce plastic use in daily life?
3. How could the plastic industry prevent spills?

Materials

- Spoons (one per group)
- Large bag of rice (to represent nurdles)
- Large container for START station
- Tables for transportation stops
- Bottles or containers with small openings
- Open, solid surface for running



Game Tips

- Use large spoons - Serving spoons would work best as students can scoop large amounts. More likely to spill when running and pouring.
- Set tables up with safety in mind. If you have room for 2 tables to run back and forth, that is okay.
- It is helpful to tape down the bottles to the table or plastic container. That way the students won't knock over the bottle while filling.

Teacher Prep



SET UP: 2-4 TABLES

- Start station: Large container of rice
- Transport tables: Empty bottles (one per team, small opening)

MAKE TEAMS

- Divide students into even teams (3+ students per team)

MOVING NURDLES

- Assign a **mode of transportation** to each team: train, 18-wheeler, cargo ship, truck

CHOOSE GAME FORMAT

- **Timed race:** Team with most rice after X minutes wins.
- **Fill-the-bottle:** First team to reach a marked fill line wins.

Game Steps

1. **Line Up:** Each team at START station.
2. **Grab & Run:** Student 1 will scoop rice, run to assigned transportation table.
3. **Pour:** Deposit rice into team container.
4. **Return & Pass:** Run back, hand spoon to Student 2.
5. **Repeat:** Continue until containers are full or time ends.



Safety Tips

- Spilled rice can be slippery - **monitor students.**
- Clean spills as needed.
- Encourage safe running and teamwork.



Post-Game Discussion

- Was it easy to pour rice without spilling rice?
- Did you focus on speed or accuracy?
- How could the plastic industry reduce nurdle spills during transport?

Takeaway

- How plastic (nurdles) is transported around the world.
- Why spills happen and why it's hard to clean them up.
- How human activities can affect oceans, rivers, and coastlines.
- How scientists and industries can design better ways to reduce plastic pollution.
- How you can be a problem-solver by brainstorming solutions!

TEKS & NGSS Alignment

Grade Level	TEKS (Science)	NGSS Performance Expectations	Connection to Activity
K-2	K.1A, K.2A – Ask questions, gather information, observe patterns. 1.3B – Collect and record observations. 2.10A – Identify ways humans depend on natural resources.	K-ESS3-3 – Communicate solutions to reduce human impacts on Earth. 2-PS1-2 – Analyze data on material properties.	Students observe rice spills (nurdles) and brainstorm solutions to reduce plastic waste.
3-5	3.1B – Plan and conduct investigations. 4.7C – Explore how slow processes (erosion, weathering) and fast processes (floods, spills) change the environment. 5.12A – Identify human dependence and effects on natural resources.	3-ESS3-1 – Claim about design solutions to reduce impacts. 5-ESS3-1 – Obtain and combine information about community solutions.	Students see how spills occur and discuss ways industries and communities can prevent or reduce impacts.
6-8	6.1A – Conduct investigations to explain phenomena. 7.12C – Explore how human activities impact ocean systems. 8.11B – Investigate human dependence and influence on ocean systems.	MS-ESS3-3 – Apply principles to design methods to minimize human impact. MS-ESS3-4 – Argue how resource use impacts Earth's systems.	Students act out transport systems, model spillage, and propose real-world industry solutions.
9-12	Bio.12E – Describe human impact on ecosystems. Env. Sys. 12B – Evaluate human activities on sustainability. Env. Sys. 12E – Evaluate cost/benefit tradeoffs in environmental decisions.	HS-ESS3-4 – Evaluate/refine solutions to reduce human impacts. HS-ESS3-6 – Model relationships among Earth systems and human activity. HS-ETS1-3 – Evaluate solutions to complex real-world problems with constraints.	Students calculate loss/recovery rates, evaluate containment strategies, and connect to global plastic transport.