inquisitive

GRADE 5 · ENGINEERING DESIGN · FAST PATH

# Unit: Material Matters

Lessons in unit: 3 · 7 days · 30 min per day · 210 min total · ↳ Time-saving teaching move · ★ Checkpoint

| 1. Plastic—Not So Fantastic! | DAY 1 · 30 MIN | DAY 2 · 30 MIN |
|---|---|---|
| **PHENOMENON QUESTION**<br>**Why is it important to reduce our use of plastic?**<br><br>**OUTCOME**<br>**State why plastic packaging is an environmental problem.**<br>**Suggest some sustainable alternatives to plastic packaging.**<br><br>**TIME**<br>**2 days · 30 min per day**<br>**60 min total** | 5 MIN **Activity 1**<br><br>10 MIN **Activity 2**<br>↳ Model one claim; each student then records their own claim, evidence, and question.<br><br>10 MIN **Activity 3**<br>↳ Supply packaging examples to reduce recall time. Each student records five products, then compares with a partner.<br><br>5 MIN **Activity 4**<br>↳ Read the information aloud; partners discuss the main question, then share one reason with the class. | **PREP** Set out jars with lids, water, scissors, and paper or plastic straws for each group.<br><br>20 MIN **Activity 5**<br>SOURCE VERSION Use the straw-and-jar activity. Compare paper-straw and plastic-straw jars where the results page says “two dishes.”<br><br>10 MIN **Activity 6** |

## 2. Fashionable Fabrics

**PHENOMENON QUESTION**
**Why are different clothes made from different materials?**

**OUTCOME**
**Identify the properties of a material that make it suitable for a particular purpose.**
**Understand that some choices of materials are more sustainable than others.**
**Use experimental observations to explain why certain materials are chosen for certain products.**

**TIME**
**2 days · 30 min per day**
**60 min total**

### DAY 3 · 30 MIN

**10 MIN** **Activity 1**
↳ After the video, use one group recorder for all four compass points; every student contributes an idea.

**10 MIN** **Activity 2**
↳ Partners read the 10-page eBook and record three facts; omit the optional class report-out.

**10 MIN** **Activity 3**
↳ Set out five contrasting garments with labels exposed. Model one material–purpose connection; each student completes all five records.

### DAY 4 · 30 MIN

**PREP** Cut three fabric samples per group and set out jars, pipettes, and test materials.

**30 MIN** **Activity 4**

## 3. Design Challenge-Keeping the Rain Off!

**PHENOMENON QUESTION**
**Can we mimic nature and make a material waterproof?**

**OUTCOME**
**Understand that the properties of a material can be changed.**
**Design, test, and evaluate a sustainable product made from a material with suitable properties.**

**TIME**
**3 days · 30 min per day**
**90 min total**
**Assessment: Anchor Maps and Autogradable Summative Assessments are not included within this pacing guide.**

| DAY 5 · 30 MIN | DAY 6 · 30 MIN | DAY 7 · 30 MIN |
|---|---|---|
| 10 MIN **Activity 1** | **PREP** Protect surfaces, cut natural fabrics, and prepare a supervised wax station. | 30 MIN **Activity 5** |
| 10 MIN **Activity 2**<br>↳ Record one shared class list; each student chooses and explains two waterproof products. | 30 MIN **Activity 4**<br>SAFETY Teacher handles hot wax. Let the coating cool before assembly and testing. | |
| 10 MIN **Activity 3**<br>↳ Offer cotton or linen with beeswax to reduce material-selection time. Keep both planning questions and students' product ideas. | | |