

A simplified lesson flow for a UDL-aligned KS2-3 Reading Lesson

Reading Text: Simple Machines

Simple machines form the foundation of mechanical advantage: they enable users to trade force for distance or alter the direction of applied force. The six primary types—lever, pulley, wheel and axle, inclined plane, wedge, and screw—each provide mechanical advantage through different principles. A lever amplifies an input force about a pivot, while an inclined plane spreads a vertical lift over a longer horizontal distance, reducing required force. Pulleys can be combined into systems to further decrease effort or redirect force. Simple machines are integral to complex devices; for instance, a jack combines a screw and lever principles to lift vehicles for repair. Understanding simple machines helps explain how tools and machines solve practical force-and-motion problems.

I. First read for gist (8–10 min) — UDL: Representation (multiple access)

Provide **two access options** (students pick):

- **Option 1 (supported):** teacher read-aloud + students follow; pause after each sentence to paraphrase.
- **Option 2 (paired):** partner reading (whisper/choral) + underline unfamiliar words.

Gist check (choose response mode = UDL Action/Expression):

- Say it to a partner **or** write 1 sentence:
“This paragraph is mostly about ____.”

II. Second read for structure & details (15–18 min) — UDL: Representation + Action/Expression (scaffolds, tools)

Give students an organizer with **two pathways**:

Pathway A (more structured): “Main Idea + 3 Details”

- Main idea: _____
- Detail 1: The six types are _____
- Detail 2: One machine and how it works: _____
- Detail 3: Example of combination (jack): _____

Pathway B (more open): “Mark the text”

- Circle: the **6 types**
- Underline: phrases about **trade force for distance / change direction**
- Box: the **jack** example
- Write 3 margin notes: “This means...”

Sentence frames (optional scaffold)

- “Mechanical advantage means you can ____.”
 - “A lever amplifies force about a ____.”
 - “An inclined plane reduces force because ____.”
 - “Pulleys can ____ or ____.”
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III. Product: demonstrate understanding (10–12 min) — UDL: Action & Expression + Engagement (choice, reduce barriers)

Students choose **one product** (same criteria, different modes):

1. **Write (6–8 sentences):** Explain mechanical advantage + describe how **two** simple machines work.
 2. **Diagram + captions:** Draw **one** machine (lever / inclined plane / pulley) and add **3 captions**:
 - What it is
 - How it works (force/distance/direction)
 - One example use
 3. **Mini oral teach-back (60–90 sec):** Explain the main idea + 2 details using the word bank; may use notes/drawing.
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UDL links

- **Engagement:** choice of tasks/products; real-life tool connections; clear goals + success criteria.
- **Representation:** read-aloud option; glossed vocabulary; visuals/gestures; structured organizer.

- **Action & Expression:** write/draw/speak options; sentence frames; word bank; partner rehearsal.