**Learning Objectives**

By the end of the lesson, students will be able to:

1. Define **work** in physics as the transfer of energy when a force moves an object.
2. Explain how a moving object (e.g., a car) can do work on another object (e.g., another car, a barrier).
3. Apply knowledge of work and kinetic energy to understand car accidents.

**Lesson Structure**

**1. Engagement (10 min) – Hook & Prior Knowledge Activation**

* **Video:** Show a short crash-test video (slow-motion footage).
* **Think-Pair-Share:** Ask students:
  + What happens when the moving car hits another car/barrier?
  + How does the crash affect the second object?
  + Can a stopped car do the same thing? Why or why not?
* **Discussion:** Guide students to understand that only **moving objects** transfer energy to other objects.

**2. Explanation (10 min) – Concept of Work in Physics**

* Introduce the definition of **work** in simple terms:
  + "Work happens when a force moves something."
  + "A moving object (like a car) has energy to do work on another object."
* **Key Concept:**
  + A moving car **hits a parked car**, transferring energy and making it move = **work is done**.
  + A parked car **does not move** and does not do work.
* **Visual Example:** Show images/animations of a car hitting a barrier, moving another car, or crashing into a wall.

**3. Exploration (15 min) – Hands-on Activity: Crash Testing with Toy Cars**

* **Materials:** Toy cars, small boxes (as barriers), ramp.
* **Procedure:**
  1. Roll a toy car down a ramp toward a box.
  2. Observe what happens when the car **hits** the box.
  3. Try with different **car speeds** (adjust ramp height) and **different box sizes**.
* **Discussion:**
  1. What happens when the car moves fast vs. slow?
  2. What happens when the box is light vs. heavy?
  3. How does this relate to real car accidents?

**4. Application (10 min) – Car Accident Case Study**

* **Video Clips:** Show two real-life crash examples:
  1. A slow-speed crash (less damage, less movement of the second object).
  2. A high-speed crash (more damage, more movement of the second object).
* **Class Discussion:**
  1. What happened to the second car/barrier in each case?
  2. Which moving car **did more work** on the other object? Why?
  3. How does this relate to kinetic energy?

**5. Reflection & Exit Ticket (5 min)**

* **Sentence Stems for Scaffolding:**
  + A moving object can do work because…
  + If a car moves fast, it does…
  + If a car is heavy, it does…
* **Verbal Sharing:** Select a few students to explain their sentences.

**EAL/D Support Strategies**

✔ **Visual Aids & Videos** – Reinforce learning with diagrams and real-world footage.  
✔ **Simple Language** – Use clear explanations (avoid technical terms like "joules").  
✔ **Scaffolding** – Provide sentence starters and word banks (e.g., "force," "move," "energy").  
✔ **Pair & Group Work** – Encourage peer discussions to build confidence.  
✔ **Multimodal Learning** – Use videos, hands-on activities, and written tasks.

**Assessment & Evaluation**

✅ **Observation:** Are students able to explain how moving objects do work?  
✅ **Exit Tickets:** Can students complete sentence stems correctly?  
✅ **Hands-on Activity:** Do students connect the toy car collisions to real-world crashes?