**Understanding & Applying the Scientific Method**

**Year Level:** Year 7 (EAL/D Students)  
**Duration:** 50 minutes  
**Topic:** The Scientific Method – Steps, Identifying Errors, and Creating a Method

**Learning Objectives**

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

1. **Describe** the steps of the scientific method.
2. **Identify** errors and flaws in experiments and suggest improvements.
3. **Create** a method for a real-world experiment.

**Lesson Structure**

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

* **Think-Pair-Share:** Ask students:
  + How do scientists solve problems?
  + What do you do if an experiment doesn’t work?
* **Video/Visual:** Show a short clip or infographic on the **scientific method**.
* **Class Brainstorm:** Write the main steps of the scientific method on the board as students recall them.

**2. Explanation (10 min) – The Scientific Method**

* Break down the **scientific method** into simple steps:
  1. **Observation & Question** – What do you want to find out?
  2. **Hypothesis** – What do you think will happen?
  3. **Experiment** – Test your idea with a fair test.
  4. **Data Collection** – Record what happens.
  5. **Analysis & Conclusion** – What do the results tell you?
  6. **Communicate Results** – Share your findings.
* **Example:** Use a simple real-world example (e.g., "Which brand of paper towel absorbs the most water?").

**Video:** Scientific method song <https://www.youtube.com/watch?v=DChofjUH488>

**Video**: <https://www.youtube.com/watch?v=yi0hwFDQTSQ> (high level)

Watch video and explain each step of the scientific method being followed

What is the aim of the experiment?

What do you think his hypothesis was?

What is the method?

How are they collecting data?

**Exploration (15 min) – Identifying Errors & Flaws**

* **Case Study:** Present an experiment with flaws (e.g., testing plant growth but using different soil types).
* **Group Task:** Students **identify errors** and suggest improvements.
* **Class Discussion:**
  + What went wrong in the experiment?
  + How could it be improved to be a fair test?

**4. Application (10 min) – Designing a Real-World Experiment**

* **Scenario-Based Task:** Students choose one real-world experiment to design, such as:
  + Does temperature affect how fast ice melts?
  + What type of ball bounces the highest?
* **Group Activity:** Students **write a method** using the scientific method steps.
* **Peer Review:** Groups swap methods and check if they are clear and testable.

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

* **Sentence Stems:**
  + The scientific method helps because…
  + A good experiment should…
  + One way to improve an experiment is…
* **Quick Share:** Ask students to share one key takeaway.

**EAL/D Support Strategies**

✔ **Visual Aids & Flowcharts** – Reinforce steps with images.  
✔ **Simple Language** – Use clear explanations and avoid jargon.  
✔ **Scaffolding** – Provide sentence starters and step-by-step templates.  
✔ **Pair & Group Work** – Encourage collaborative learning.  
✔ **Real-World Examples** – Make concepts relatable.

**Assessment & Evaluation**

✅ **Observation:** Are students able to describe the scientific method?  
✅ **Group Task:** Can students identify and correct experimental flaws?  
✅ **Experiment Method:** Is the method clear, logical, and testable?