Lesson Plan: Einstein's Little Explorers

Subject: Science

Topics: Scientific Practices & Tools, Albert Einstein's Curiosity

Student: Mirabelle, 6-year-old homeschooler

Goal: To understand the basic process of scientific inquiry (observing, asking questions, testing ideas) and to be inspired by Albert Einstein's sense of wonder.

Materials Needed

- **General Materials:** A small box or bag, paper, crayons or markers, a pencil, scissors, tape or glue, a shallow bowl or dish, paperclips, tissue paper.
- **Science Tools (or homemade versions):** A real or toy magnifying glass, a small blank notebook.
- **Optional Digital Resources:**
  - **YouTube Video:** "What is a Scientist?" by SciShow Kids or a similar short, animated video.
  - **Online Story:** A read-aloud of a picture book about Albert Einstein, like *On a Beam of Light* by Jennifer Berne.
  - **Worksheets (from twinkl.com or similar):** A simple worksheet matching scientific tools to their purpose (optional reinforcement).

Day 1: The Tools of a Thinker (15-30 minutes)

Learning Objective:

Mirabelle will identify that scientists observe, ask questions, and use tools to learn about the world. She will create her own "Scientist Toolkit."

Lesson Steps:

1. **Guided Lesson: What is a Scientist? (10-15 minutes)**
   - **Introduction (Hook):** "Mirabelle, did you know that every time you ask 'Why?' you are thinking just like a scientist? The most famous scientists, like Albert Einstein, were just people who never stopped asking questions! Today, we are going to be scientists."
   - **Step 1: Observe!** Give Mirabelle the magnifying glass. Ask her to look very closely at something nearby, like a leaf, a flower, or the fabric on her shirt. Say, "Scientists **observe**. That means they look, listen, and use all their senses to notice details. What do you see?"
   - **Step 2: Ask Questions!** Based on her observations, model asking a question. "I see tiny lines on this leaf. I wonder... why are those lines there? What is your question?" Help her form a "I wonder..." question.
   - **Step 3: Guess & Test!** Explain simply: "After a scientist asks a question, they make a smart **guess** to answer it. Then, they do an experiment to **test** if their guess is right! We'll do our own test tomorrow."

- **(Optional) Video Time:** Watch a short, engaging YouTube video about what scientists do.

2. **Hands-On Project: My Scientist Toolkit (10-15 minutes, independent)**
    - **Task:** Give Mirabelle the small box or bag. Explain that every scientist needs their tools. Her mission is to create her own personal Scientist Toolkit.
    - **Instructions for Mirabelle:**
        1. Decorate your box! Make it look like it belongs to a super scientist.
        2. Gather your tools and put them inside. You'll need:
            - Your magnifying glass for observing.
            - A small notepad and pencil for writing or drawing your discoveries.
            - Anything else you think a scientist needs!
    - **Parent Role:** Provide the materials and let her creativity lead. This toolkit will be used in future science lessons.

Day 2: Einstein's Curious Questions (15-30 minutes)

Learning Objective:

Mirabelle will understand that curiosity (asking questions) is a key trait of a scientist like Einstein. She will conduct a simple experiment to test a hypothesis about surface tension.

Lesson Steps:

1. **Guided Lesson: Albert Einstein's Big Ideas (10 minutes)**
    - **Introduction (Hook):** "Remember our scientist, Albert Einstein? He was famous for his curiosity. He didn't just ask small questions; he asked HUGE questions nobody had thought of before, like 'What would it feel like to ride on a beam of light?' His amazing imagination helped him change the world."
    - **Story Time:** Read a story or watch a short video about Einstein's childhood, focusing on his wonder and curiosity.
    - **The Experiment Question:** "Einstein loved figuring out puzzles that seemed like magic. Today, we have a puzzle. Our question is: **Can we make a metal paperclip float on water?**"
    - **Make a Guess (Hypothesis):** Ask Mirabelle, "What is your scientific guess? Do you think it will sink or float? Why?"

2. **Guided Experiment: The Floating Paperclip (5-10 minutes)**
    1. Fill the shallow bowl with water.
    2. Ask Mirabelle to gently place a paperclip on the water's surface. (It will sink). "That's okay! In science, tests don't always work the first time. Let's try it a different way."
    3. **The Secret Method:** You demonstrate this part. Gently lay a small, flat piece of tissue paper on the water. Carefully place a dry paperclip on top of the tissue.
    4. **The Magic:** Give Mirabelle a pencil. Have her gently poke the tissue paper (not the paperclip!) until the tissue becomes waterlogged and sinks, leaving the paperclip floating!
    5. **The Science:** "Wow! You did it! It's not magic, it's science! The water has a special thin 'skin' on top called surface tension, and it's strong enough to hold up the paperclip if you place it gently."

3. **Hands-On Project: My Book of Curious Questions (5-10 minutes, independent)**
    - **Task:** Give Mirabelle the small blank notebook. "This is your very own 'Book of Curious Questions,' just like Einstein had. Your job is to fill it with all the things you wonder about."
    - **Instructions for Mirabelle:**
        1. Decorate the cover of your book.
        2. On the first page, think of one big question you have about the world.
        3. Draw a picture of your question. You can ask me to help you write the words.
    - **Ongoing Goal:** Explain that she can add a new question to this book any time she wonders about something. This book is for her ideas, and together, you can try to find the answers later.