### **MINI UNIT PLAN**

### **Materials Needed:**

### **Balloons**

### **Flashlight**

### **Small ball (representing Earth)**

### **Pictures of galaxies, stars, planets, and Cambrian creatures**

### **Timeline materials (poster or chalkboard)**

### **Drawing paper and coloring materials**

#### **1. Introduction to the Big Bang**

#### **Learning Goal:** We are learning about the origins of the universe

**Materials:**

* Balloons (for demonstration)
* Images of space (galaxies, planets, etc.)
* A globe or a large map of Earth

**Discussion/Teaching Prompts:**

* Start by asking, "Where do you think the universe came from?"
* Introduce the concept of the Big Bang: A huge explosion happened around 13.8 billion years ago that started everything. Before that, there was nothing — no time, no space, no stars.
* Explain that from that explosion, tiny pieces started forming stars, planets, and everything else.

**Activity:**

* **Balloon Expansion Activity**:
  + Blow up a balloon a little and show it to the class. Mark spots on it to represent galaxies.
  + Explain that the universe started very small, like this balloon.
  + Slowly blow more air into the balloon to show how the universe has been expanding.
  + Discuss that the galaxies (spots) are moving apart just like how the universe keeps growing bigger.

#### **2. Exploring the Universe**

#### **Learning Goal:** We are learning about key elements of the universe: stars, planets, galaxies, and their scale.

**Materials:**

* Images or models of the Sun, planets, galaxies, and stars.
* A flashlight (to represent the Sun)

**Discussion/Teaching Prompts:**

* What’s out there? Stars, planets, moons, comets, and galaxies.
* Our galaxy is called the Milky Way, and our planet, Earth, orbits around the Sun.
* Introduce the concept of light-years in simple terms (how far light travels in one year).
* Show how the Sun is the closest star to Earth, but there are billions of others!

**Activity:**

* **Sun and Earth Model**:
  + Use a flashlight to represent the Sun and a small ball (like a marble) for Earth.
  + Have the children take turns holding Earth and moving it around the flashlight to represent how the Earth orbits the Sun.

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#### **3. The Cambrian Age (20 minutes)**

**Goal:**We are learning about the Cambrian age and why it is important

**Materials:**

* Fossil pictures (<https://kids.britannica.com/kids/article/geologic-time/390244> or <https://kids.kiddle.co/Cambrian> or <https://onegeology.org/kids2/english/fossils/brachiopods.html> as always preview websites)
* Large timeline poster Earth's history (https://kids.britannica.com/kids/article/geologic-time/390244)
* Pictures of early animals (trilobites, etc.) <https://kids.kiddle.co/Trilobite> , <https://www.uky.edu/KGS/fossils/trilob_fact_sheet.pdf> or <https://www.activewild.com/trilobites/>

**Discussion/Teaching Prompts:**

* Earth has existed for billions of years! A long time ago, life on Earth was very different.
* Around 540 million years ago, during the **Cambrian Age**, there was an "explosion" of life. Many new types of animals appeared on Earth.
* These animals lived in the oceans, and some had strange body shapes (e.g., trilobites, early sponges).

**Activity:**

* **Timeline of Life on Earth**:
  + Create a timeline on the board starting from the Big Bang and ending with the Cambrian Age.
  + Show where dinosaurs come much later on this timeline.
  + Have the students draw or color their own timeline showing key events.
* **Create Your Own Cambrian Creature**:
  + Give students paper and markers to draw their own imagined Cambrian creature.
  + Encourage creativity by showing pictures of real Cambrian creatures like trilobites and explaining their features.

### **4. Conclusion and Recap**

* Review the key ideas: The Big Bang started the universe, which contains stars, planets, and galaxies.
* Remind them that life on Earth began a long time ago, with many new creatures appearing during the Cambrian Age.
* Ask a few questions to check their understanding:
  + What was the Big Bang?
  + What is the universe made of?
  + What was special about the Cambrian Age?

**Learning Outcomes:** By the end of the mini unit plan, students will:

* Understand the basic concept of the Big Bang and the expanding universe.
* Recognize the key elements of the universe (stars, galaxies, planets).
* Have a basic understanding of the Cambrian Age and its importance in Earth's history.