

# CHAPTER 1

# **WEEK ONE: STARS AND THE UNIVERSE**

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**AFTER EATING HIS FIRST  
MEAL ON THE MOON, THE  
ASTRONAUT REPORTED...**



THE FOOD WAS  
GOOD, BUT THE  
PLACE LACKED  
ATMOSPHERE.



HANG ON... THEY'RE  
ONLY GOING TO GET  
WORSE!

# **DAY ONE**

**TODAY, YOU AND YOUR CHILD WILL:**

- 1. READ THE TEXT**
  - 2. REVIEW THE TEXT WITH YOUR CHILD**
  - 3. COMPLETE THE STUDENT WORKSHEETS**
  - 4. FIND THE MATERIALS YOU WILL NEED FOR DAYS TWO AND THREE**
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**DURING YOUR REVIEW, THE FOLLOWING LIST WILL GIVE YOU THE MOST IMPORTANT PARTS OF YOUR CHILD'S READING FOR THIS WEEK.**

ALL OBJECTS IN THE UNIVERSE HAVE PROPERTIES, LOCATIONS, AND MOVEMENTS THAT CAN BE OBSERVED AND DESCRIBED.

THE EARTH IS THE THIRD PLANET FROM THE SUN IN A SYSTEM THAT INCLUDES THE MOON, THE SUN, SEVEN OTHER PLANETS AND THEIR MOONS, AND SMALLER OBJECTS, SUCH AS ASTEROIDS AND COMETS. THE SUN, AN AVERAGE STAR, IS THE CENTRAL AND LARGEST BODY IN THE SOLAR SYSTEM.

**DEFINITIONS:**

<b>ASTRONOMERS</b>	SCIENTISTS WHO STUDY THE UNIVERSE
<b>UNIVERSE</b>	A WORD WE USE TO DESCRIBE EVERYTHING THAT EXISTS...EVERYWHERE
<b>TELESCOPE</b>	A TOOL THAT IS USED TO MAKE FARAWAY OBJECTS LOOK CLOSER THAN THEY ARE.
<b>GALAXIES</b>	A LARGE GROUP OF GAS, DUST AND MANY STARS. THERE ARE BILLIONS OF GALAXIES IN THE UNIVERSE.
<b>STARS</b>	HUGE BALLS OF HOT GAS THAT GIVE OFF A LARGE AMOUNT OF ENERGY (LIKE HEAT AND LIGHT)!!!
<b>MILKY WAY GALAXY</b>	THE NAME OF THE GALAXY THAT WE LIVE IN
<b>SUN</b>	OUR NEAREST STAR
<b>COMET</b>	A CHUNK OF ICE, GASES AND DUST THAT SPINS AROUND A SUN; A "DIRTY SNOWBALL"
<b>ORBIT</b>	THE MOVEMENT OF AN OBJECT AROUND A SUN
<b>ASTEROIDS</b>	LARGE CHUNKS OF ROCK THAT ARE FLOATING IN SPACE
<b>METEORIODS</b>	SMALLER CHUNKS OF ROCK (LESS THAN 20 FEET LONG) THAT FLOAT AROUND IN SPACE
<b>METEOR</b>	"SHOOTING STARS" OR "FALLING STARS"; FALLING METEORIODS THAT MOVE SO QUICKLY THROUGH THE AIR THAT THEY GET VERY HOT AND BURN UP, LEAVING A GLOWING TRAIL BEHIND THEM IN THE AIR
<b>METEORITE</b>	THE NAME GIVEN TO A METEOR THAT DOES NOT ENTIRELY BURN UP IN THE AIR AND SMASHES INTO THE GROUND
<b>PLANETS</b>	VERY LARGE ROUND BODIES OF ROCK OR GAS THAT ORBIT AROUND STARS
<b>EARTH</b>	OUR HOME PLANET, THE THIRD PLANET FROM THE SUN
<b>SOLAR SYSTEM</b>	ALL OF THE PLANETS, ASTEROIDS, METEORIODS AND COMETS THAT ORBIT A STAR

## **SAMPLE QUESTIONS TO ASK AFTER YOUR CHILD FINISHES THEIR READING FOR DAY ONE:**

**PLACE IN ORDER OF GREATEST SIZE TO SMALLEST SIZE: PLANET, STAR, UNIVERSE AND SOLAR SYSTEM**

*UNIVERSE, SOLAR SYSTEM, STAR, PLANET*

**WHAT IS EARTH'S CLOSEST STAR?**

*THE SUN.*

**WHAT IS THE DIFFERENCE BETWEEN A COMET AND AN ASTEROID?**

*A COMET MOVES IN ORBIT AROUND A STAR WHILE AN ASTEROID MAY SIMPLY FLOAT IN SPACE.*

**WHAT IS THE DIFFERENCE BETWEEN A METEOR AND A METEOROID?**

*A METEOR IS A METEOROID THAT IS FALLING THROUGH OUR ATMOSPHERE.*

# **ANSWERS TO WORKSHEET QUESTIONS FOR WEEK ONE:**

## **PAGE ONE:**

3-METEOR  
9-EARTH  
10-SOLAR SYSTEM  
5-METEORIDS  
6-PLANETS  
7-METEORITE  
2-ORBIT  
1-STARS

13-MILKY WAY GALAXY  
12-TELESCOPE  
15-COMET  
8-ASTERIODS  
4-SUN  
14-GALAXIES  
16-UNIVERSE  
11-ASTRONOMERS

## **PAGE TWO:**

### **COMPARISONS BETWEEN STARS AND PLANETS:**

- BOTH HAVE A ROUND SHAPE
- BOTH ARE FOUND WITHIN A SOLAR SYSTEM
- BOTH MAY BE MADE OF GAS

### **DIFFERENCES BETWEEN STARS AND PLANETS:**

- STARS GIVE OFF MUCH MORE ENERGY THAN PLANETS
- PLANETS ORBIT STARS
- STARS ARE NOT MADE UP OF ROCK

## **PAGE THREE:**

1. UNIVERSE
2. GALAXY
3. SOLAR SYSTEM
4. STARS
5. COMET
6. METEOROID
7. METEORITE

# DAY TWO

**TODAY, YOU AND YOUR CHILD WILL:**

1. REVIEW DAY ONE USING THE FOLLOWING TEXT
  2. RUN THE ACTIVITY: "ESP ACTIVITY: CRASHING INTO EARTH"
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**THE FOLLOWING LIST WILL GIVE YOU THE MOST IMPORTANT ITEMS TO REVIEW FOR YOUR ACTIVITY TODAY!**

**ASTEROIDS** "AST-UR-OIDS" ARE LARGE CHUNKS OF ROCK THAT ARE FLOATING IN SPACE.

**METEORIDS** "MEET-EE-OR-OIDS" ARE SMALLER CHUNKS OF ROCK (LESS THAN 20 FEET LONG) THAT FLOAT AROUND IN SPACE. MILLIONS OF METEORIDS FLOAT TOWARDS US EVERYDAY. WHEN THIS HAPPENS, THE METEOROID IS CALLED A **METEOR** "MEET-EE-OR". YOU MAY HAVE HEARD OF METEORS AS "SHOOTING STARS" OR "FALLING STARS"! THESE SMALL CHUNKS OF ROCK ARE MOVING VERY QUICKLY AND HEAT UP QUITE A LOT! IN FACT, THEY GET SO HOT THAT PIECES OF THEM BURN OFF AND LEAVE A TRAIL BEHIND THEM!

MOST METEORS BURN UP BEFORE THEY REACH THE GROUND, BUT NOT ALL OF THEM! IF A METEOR SMASHES INTO THE GROUND, IT CAN CAUSE A LOT OF DAMAGE! WHEN THIS HAPPENS, ASTRONOMERS CALL THE METEOR A **METEORITE** "MEET-EE-OR-ITE"!

## ***ESP ACTIVITY: CRASHING INTO EARTH***

STUDENTS WILL CREATE CRATERS ON THEIR SIMULATED MOON.

### **MATERIALS:**

SHALLOW PAN

ONE BAG OF FLOUR

CONTAINER OF COCOA

MEASURING TAPE

MARBLE

### **ACTIVITY:**

FILL THE SHALLOW PAN WITH ABOUT 1/4 INCH OF FLOUR AND SPRINKLE COCOA OVER THE SURFACE.

DROP THE MARBLE FROM A KNOWN HEIGHT ONTO THE SURFACE OF THE PAN.

MEASURE THE DIAMETER OF THE IMPACT CRATER IN THE FLOUR.

MIX THE CONTENTS OF THE PAN TOGETHER AND SPRINKLE MORE COCOA ONTO THE SURFACE.

FOR EXPERIMENTATION, INCREASE OR DECREASE THE HEIGHT OF THE MARBLE.

### **EXPLANATION:**

AS PARTICLES OR ROCKS ARE TRAVELING THROUGH SPACE, THEY ARE KNOWN AS METEORIDS. WHEN THEY ENTER THE EARTH'S ATMOSPHERE, THEY LIGHT UP BRIGHTLY AS FRICTION VAPORIZES THE SURFACE OF THE METEOROID. AT THIS TIME, A METEOROID IS KNOWN AS A METEOR. IF THIS OBJECT DOES NOT ENTIRELY BURN UP IN THE ATMOSPHERE AND IT STRIKES THE EARTH, IT IS KNOWN AS A METEORITE. THE MARBLE CREATES A CRATER WITHIN THE SURFACE OF THE FLOUR IN SIMILAR FASHION TO METEORITES WHICH STRIKE THE EARTH.

**INDEPENDENT VARIABLE:** HEIGHT OF THE MARBLE

**DEPENDENT VARIABLE:** DIAMETER OF THE CRATER

### **HYPOTHESIS:**

IF THE HEIGHT OF THE MARBLE IS (INCREASED/DECREASED), THEN THE DIAMETER OF THE CRATER WILL (INCREASE/DECREASE).



## **DAY THREE**

**TODAY, YOU AND YOUR CHILD WILL:**

- 1. REVIEW DAY ONE USING THE FOLLOWING TEXT**
- 2. RUN THE ACTIVITY: "PORTABLE PLANETARIUMS"**

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**THE FOLLOWING LIST WILL GIVE YOU THE MOST IMPORTANT ITEMS TO REVIEW FOR YOUR ACTIVITY TODAY!**

**STARS** ARE HUGE BALLS OF HOT GAS THAT GIVE OFF A LARGE AMOUNT OF ENERGY (LIKE HEAT AND LIGHT)!!!

OUR SUN IS OUR CLOSET STAR.

GROUPS OF STARS WE SEE IN THE NIGHT SKY ARE CALLED **CONSTELLATIONS**

## **PORTABLE PLANETARIUMS**

CHILDREN WILL USE A CEREAL BOX AND A FLASHLIGHT TO CONSTRUCT THEIR OWN PLANETARIUM

### **MATERIALS:**

CEREAL BOXES

FLASHLIGHT

SCISSORS

CONSTELLATION MAP (ATTACHED)

### **ACTIVITY:**

REMOVE THE CEREAL FROM THE BOX.

PLACE THE CONSTELLATION MAP ONTO THE SURFACE OF THE BOX.

PUNCH HOLES THROUGH THE SIDE OF THE BOX IN THE RIGHT POSITIONS FOR THE GIVEN CONSTELLATION.

CUT A ROUND OPENING IN THE SIDE OF THE BOX FOR THE FLASHLIGHT.

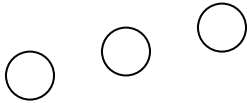
INSERT THE FLASHLIGHT AND TURN ON YOUR PLANETARIUM IN A DARKENED ROOM. YOU SHOULD SEE THE CONSTELLATION SHINING THROUGH THE HOLES OF THE BOX.

TAKE YOUR PORTABLE PLANETARIUM ON A STARGAZING TRIP TO HELP YOU FIND CONSTELLATION IN THE SKY.

### **EXPLANATION:**

A PLANETARIUM CONSISTS OF HALF A HOLLOW SPHERE ON THE INSIDE OF WHICH HAVE BEEN PLACED THE VARIOUS STARS IN THEIR RELATIVE POSITIONS. THE HALF SPHERE SPINS SLOWLY TO GIVE THE APPEARANCE OF THE STARS MOVING THROUGH THE NIGHT SKY. MAKING A PORTABLE PLANETARIUM IS A GOOD WAY TO FAMILIARIZE YOURSELF WITH THE GROUPING OF STARS (KNOWN AS CONSTELLATIONS) BEFORE YOU TO STARGAZING TO LOOK FOR

# Orion



PLACE THE CONSTELLATION MAP ONTO THE SURFACE OF THE BOX.  
PUNCH HOLES THROUGH THE SIDE OF THE BOX IN THE RIGHT POSITIONS FOR THE GIVEN  
CONSTELLATION.

# Big Dipper

