

**UNDERSTANDING BY DESIGN**

Unit Title: Rediscovering Earth  
 Grade Level: 5<sup>th</sup> grade  
 Subject Area: Science  
 Designed by: Denver Huffstutler, Katherine Blake, Grant Knowles, Catherine Agee  
 Time Frame: 9 week module  
 School District: HCDE  
 School: Normal Park Museum Magnet  
 Address: 1219 W. Mississippi Avenue  
 Chattanooga, TN 37405  
 Phone: (423) 209-5914

**Brief Summary of Unit:**

Students will use the scientific method to research, test and analyze important Earth and Space Science concepts such as plate tectonics, states of matter, physical and chemical changes in matter, Newton's Laws of Conservation, energy in motion.

**Stage 1: Desired Results**

**Understandings:**

1. Structure influences behavior.  
(GLE 7.9.1, 7.9.2, 7.9.3, 7.10.1, 7.10.2, 7.11.1, 7.12.1, 7.12.2, 7.12.3, 7.7.1, 7.8.2)
2. Movement can be observed, described, predicted or measured. (GLE 7.9.2, 7.9.3, 7.10.1, 7.10.2, 7.11.1, 7.12.1, 7.12.2, 7.12.3, 7.6.1, 7.6.2, 7.7.1, 7.8.1)

**Essential Questions:**

1. How does structure influence behavior?  
(SPI 7.9.1, 7.9.2, 7.9.3, 7.10.1, 7.10.2, 7.11.1, 7.12.1, 7.12.2, 7.12.3, 7.7.1, 7.8.2)
2. How is movement observed, described, predicted or measured? (SPI 7.6.3, 7.9.2, 7.9.3, 7.10.1, 7.10.2, 7.11.1, 7.12.1, 7.12.2, 7.12.3, 7.6.1, 7.6.2, 7.7.1, 7.8.1)

**Standards for Quarter 2 UbD**

Universe	Earth	Atmosphere	Matter
7.6.1 7.6.2 7.6.3	7.7.1	7.8.1 7.8.2	7.9.1 7.9.2 7.9.3
Energy	Motion	Forces in Nature	
7.10.1 7.10.2	7.11.1	7.2.3 7.12.1 7.12.2 7.12.3 SS 5.3.02	

**Stage 2: Assessment Evidence**

**Performance Tasks:**

Students receive an important message from Professor Phineas Ferbious stating that the Earth is slowly dying and that we need to find a new planet to live on. He has discovered a planet that he believes will sustain life. He needs students to conduct research in order to learn more about our own planet so that they may be able to decide if NPMMS will be suitable for us to inhabit. Students will complete a performance task of creating either a launching a rocket, landing a pod, or building a rover that will demonstrate standards in energy, motion, Earth, atmosphere, and matter.

**Exhibit Overview** **5<sup>th</sup> Grade**

**Unit Topic:** Earth and Space Science

**Overview:** Students will use the scientific method to research, test and analyze important Earth and Space Science concepts such as plate tectonics, states of matter, physical and chemical changes in matter, Newton's Laws of Conservation, energy in motion.

**Element 1** **Understanding Addressed:** \_\_\_\_\_

**Prompts for Labels:**

**Element 2** \_\_\_\_\_ **Understanding Addressed:** \_\_\_\_\_

**Prompts for Labels:**

**Element 3** \_\_\_\_\_ **Understanding Addressed:** \_\_\_\_\_

**Prompts for Labels:**

**Element 4** \_\_\_\_\_ **Understanding Addressed:** \_\_\_\_\_

**Prompts for Labels:**

**Element 5** \_\_\_\_\_ **Understanding Addressed:** \_\_\_\_\_

**Prompts for Labels:**

**Other Evidence:**

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**Self-Assessment: formative and summative**

Vocabulary development with New Word List, quizzes, Rubric-assessed Travel Journals, Written Responses to Learning Expeditions, Science Lab Checklists, Socratic Seminar responses

**Rubric for Understanding: Grades 4-5**

**Technology/Performance for Exhibit Night:**

Technology:

Performance:

**Interactive Exhibits:**

**Stage 3 Learning Plan** \_\_\_\_\_

**\*\*Probe sends back info each week (by video) that ties into content**

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## **EARTH**

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### **(HOOK) Welcome Space Cadets!**

#### **Understanding Addressed:**

**Strategy:** class discussion, video clip

**Learning expedition/activity:** Present students with unit scenario of professor's plea for help. Launch Project: Great Space Race. Design, create, and improve a rocket, landing pod, and crew exploration vehicle (CEV) to demonstrate concepts of kinetic and potential energy, gravity, surface area, friction, and heat transfer. Launch with NASA video: Engineering. Discuss our mission and Essential Questions; set up TJ pages

#### **Assessment or exhibit piece:**

**Day 1: Set up Travel Journal (number pages, glue in TOC, discuss/create Essential Questions page);**

**Preview 8th grade Exhibit**

### **Lesson 1: Mother Earth**

#### **Understanding Addressed:**

**Strategy:** model, pop up, discussion

**Learning expedition/activity:** Pangea, physical characteristics of Earth (layers of Earth-C 14-15) landforms, plate tectonics, Brainpop (Plate Tectonics), C9-10, mountains, volcanoes, earthquakes;  
-use carpet squares to demonstrate plate movements; take picture of each

**Assessment or exhibit piece:** (divergent, subduction, collisional, transform boundary)

**Vocabulary** (core, crust, earthquake, fault, plate movement, volcano, magma, divergent, convergent)

### **Lesson 2: America the Beautiful**

#### **Understanding Addressed:**

**Strategy:** discussion, reading maps

**Learning expedition/activity:** recognize outline border of America with physical map, major bodies of water (Ohio, Rio Grande, Mississippi, Missouri, Columbia, St. Lawrence, Hudson, Tennessee, Colorado Rivers and 5 great lakes HOMES), Rocky and Appalachian mountains

**Assessment or exhibit piece:** Physical Map of America with clear overlay using sharpies to label

### **Lesson 3: Our Changing Earth (Thursday October 17)**

#### **Understanding Addressed:**

**Strategy:** model, pop up, discussion

**Learning expedition/activity:** Brainpop (Erosion), Forces of nature that shape land on the earth, pg C9-10  
4 Rotations:

Huffstutler- glaciation: soil in pan w/ ice block

Blake- wind: sand paper & sugar cubes

Agee- deforestation/man: plant in soil with water to wash away soil

Knowles- water: waves in pan to move soil

**Assessment or exhibit piece:** TJ pg 6 (cards: before, description, after for each force: human, wind, water, ice - pic of real world and sketch of experiment)

**Vocabulary** (variable)

### **Lesson 4: Effects of Man**

#### **Understanding Addressed:** 1, 2

**Strategy:** Discuss natural disasters and man made disasters, connect to earthquake/tsunami in Japan in 2011. CNN has synopsis website to review. Two articles to compare are as follows:

<http://thinkprogress.org/climate/2013/08/29/2548951/fukushima-radiation-fish/>

<http://articles.latimes.com/2013/jun/03/science/la-la-sci-sn-fukushima-radiation-seafood-20130603>

Focus on "simpson fish" article and fear spreading with unlabeled NOAA diagram. Students will read and discuss texts in pairs, then as whole group. Article goes on pg. 7, reflection on pg. 8.

**Learning expedition/activity:** science experiment

**Assessment or exhibit piece:** TJ pg 7 (article); TJ pg8 Personal Connection page on this topic (personal reflection, article, website, photos)

#### **Lesson 5: Rain Falls and Shadows**

**Understanding Addressed:**1,2

**Strategy:**

**Learning expedition/activity:** compare climographs, and study the effects mountains have on weather and climate, C64-77, Brainpop (Weather)

**Assessment or exhibit piece:** TJ pg 9 Draw and label diagram, use mountain of construction paper, cotton ball cloud, rain, and paper

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**SUM IT UP** over Earth and Weather/ Science Lab Assessment as Quiz

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### **MATTER**

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#### **Lesson 6: Physical Properties of Matter**

**Understanding Addressed:**

**Strategy:** Science experiment

**Learning expedition/activity:** Discuss that matter has physical properties that can be observed and measured (color, length, shape, volume). Use

<http://idahoptv.org/dialogue4kids/season7/matter/vocabulary.cfm>

to introduce. Find the volume of liquid with graduated cylinder, volume of a book by measuring (l $\times$ w $\times$ h), and volume of a solid by dropping rocks into water (E6-9 for reference) through displacement of liquid; Sci Lab has graduated cylinders

**Vocabulary** (matter, molecule, physical property, states of matter, vapor, condensation, volume, density, solid, liquid, gas, mass)

**Assessment or exhibit piece:** TJ pg. 10 Table Matters (Notes)

#### **Lesson 7: Physical Properties of Matter, part 2**

**Understanding Addressed:**

**Strategy:**

**Learning expedition/activity:** Discuss that matter has mass, weight, density E6-19, Brainpop (does it sink or float? raisins in sprite, push in to measure volume, discuss difference between density of pumpkin to density to water OR egg/golf ball in salt water)

**Assessment or exhibit piece:** TJ pg 10

#### **Lesson 8: Physical Changes in Matter**

**Understanding Addressed:**

**Strategy:** interpretation, hypothesis

**Learning expedition/activity:** Investigate E12-13 Observe and Infer that liquid water, ice, and H<sub>2</sub>O vapor are all the same substance, but have diff physical properties. Observe all diff states/forms of the same substance.

**Vocabulary** (melting, freezing, evaporation, hypothesis) (ice cubes, baggies, scale w/ weights) Use experiment recording sheet

**Assessment or exhibit piece:**

#### **Lesson 9: Chemical Properties of Matter**

**Understanding Addressed:**

**Strategy:**

**Learning expedition/activity:** Chemical Prop flipchart; BrainPop Jr: Physical & Chem Changes; Smores: graham cracker - break in half = phy change, chocolate bar - melt = physical change, marshmallow - burn w/ candle until color changes = chemical change (sterno & metal skewers)

**Vocabulary** (chemical properties, reactivity, combustibility)

**Assessment or exhibit piece:** TJ page 11 - illustrate campfire and label

#### **Lesson 10: Conservation of Matter: “You Can’t Get Something From Nothing”**

**Understanding Addressed:** 1

**Strategy:**

**Learning expedition/activity:** Watch Brainpop (Law of Conservation of Mass) Read E26; Vinegar and Baking Soda experiment in Bag (get scales from math)

**Assessment or exhibit piece:** TJ page 12 What is the Law of Conservation of Mass?, use printable journal page for observation of experiment.

#### **Lesson 11: Space Race**

**Understanding Addressed:** 1, 2

**Strategy:** Engineering Design Process (6 Step Design Process) NASA

**Learning expedition/activity:** Design, create, and improve a rocket and landing pod to demonstrate concepts of kinetic and potential energy, gravity, surface area, friction, and heat transfer.

**Assessment or exhibit piece:** Rocket, landing pod, and CEV to be demonstrated and explained during exhibit.

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**SUM IT UP** properties of matter, changes in matter, potential and kinetic energy

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#### **Lesson 12: Ice, Ice Baby...**

**Understanding Addressed:** 1,3,4

**Strategy:**

**Learning expedition/activity:** Ice cube challenge: timed ice melting race, students in partners/small groups choose methods to melt the ice first. Create chart with time elapsed, method; then place into categories of conduction, convection, and radiation as appropriate. Watch *Heat, Temperature and Energy* on United Streaming. Use G.O. to take notes on video. Take notes on topic, details, and response.

**Assessment or exhibit piece:** Graphic organizer

#### **Lesson 13a: Can I Make Heat Transfer?**

**Understanding Addressed:**

**Strategy:**

**Learning expedition/activity:** Heat transfer, create foldable for conduction, convection, and radiation. Create Matter on Main collaborative labels (Denver has photo example). Great website <http://www.wisc-online.com/Objects/heattransfer/default.aspx>

**Assessment or exhibit piece:** Matter on Main collaborative labels, Conduction, Convection and Radiation (Heat Transfer) in TJ (foldable w/ pic and definition)

#### **Lesson 13b: Energy In Motion**

**Understanding Addressed:**

**Strategy:**

**Learning expedition/activity:** Study of kinetic and potential energy (Grant)

**Assessment or exhibit piece:** TJ p 13

#### **Lesson 14: Sea Breeze**

**Understanding Addressed:** 1,2,4

**Strategy:** discussion, flipchart

**Learning expedition/activity:** Sea Breeze flip chart. Discuss scientific, annotated diagrams (Agee to find example). Students create annotated diagram with numbers/labels/descriptions, etc. for TJ p 16

**Assessment or exhibit piece:** Annotated diagram

#### **Lesson 15: Space Race**

**Understanding Addressed:** 1, 2

**Strategy:** Engineering Design Process (6 Step Design Process) NASA

**Learning expedition/activity:** Design, create, and improve a rocket and landing pod to demonstrate concepts of kinetic and potential energy, gravity, surface area, friction, and heat transfer.

**Assessment or exhibit piece:** Rocket, landing pod, and CEV to be demonstrated and explained during exhibit.

#### **Lesson 16: Layers of the Atmosphere**

**Understanding Addressed:** 1,2

**Strategy:** identify and label

**Learning expedition/activity:** Read article (see link below) in groups and use information from article to create a diagram of Earth's atmosphere. Diagram and article will go on p 17 of TJ

<http://science.nationalgeographic.com/science/earth/earths-atmosphere/>

**Assessment or exhibit piece:** TJ page 17

**Lesson 17 A & B: (2 Days) Inner Planets (Mercury, Venus, Earth, Mars)**

**Understanding Addressed:**

**Strategy:** graphic organizer

**Learning expedition/activity:** Brainpop on Solar System, orbit, revolution, rotation, four centers with information on each planet, students work through centers as a group, fill in flipbook.

**Assessment or exhibit piece:** Left-hand page flipchart/chart filling in information (appearance, location, composition, and apparent motion) on planets based on research. Right hand page will be written compare/contrast piece on inner vs. outer planets.

**Lesson 18 A & B: (2 Days) Outer Planets (Neptune, Uranus, Jupiter, Saturn)**

**Understanding Addressed:**

**Strategy:** graphic organizer

**Learning expedition/activity:** Brainpop on gravity, F49 and F8

**Assessment or exhibit piece:** flipbook in TJ

**Lesson 19: Seminar: Space Junk**

**Understanding Addressed:** 1,4

**Strategy:** seminar

**Learning expedition/activity:** Seminar article on Space Junk (Blake).

**Lesson MATH: Weigh Out There! Work with complex data charts Weight/Age in Space**

**Understanding Addressed:**

**Strategy:**

**Learning expedition/activity:** Watch Brainpop on Solar System, find weight and age on each planet. Completed in math class.

**Assessment or exhibit piece:** Travel Journal (Weight in Space)

**Lesson 20: Tools Scientists Use to Study Space**

**Understanding Addressed:**

**Strategy:**

**Learning expedition/activity:** experiment using a variety of tools, construct paper telescopes, Star chart, compare the uses of star charts and telescopes and month location of map. Use app for night sky. Google star chart to demo how Earth's movement affects stars being seen.

**Assessment or exhibit piece:** TJ Create a Star Chart

**Lesson 21 A & B: Rotations**

**Understanding Addressed:** 1,2

**Strategy:** identify and label

**Learning expedition/activity:** 4 rotations: Starry Night; Constellations with pringle cans; labels; TJ covers.

**Assessment or exhibit piece:** pg 26 in TJ, Hubble Reflection page 27 in TJ

**Lesson 22: Space Race**

**Understanding Addressed:** 1, 2

**Strategy:** Engineering Design Process (6 Step Design Process) NASA

**Learning expedition/activity:** Design, create, and improve a rocket, landing pod, and crew exploration vehicle (CEV) to demonstrate concepts of kinetic and potential energy, gravity, surface area, friction.

**Assessment or exhibit piece:** Rocket, landing pod, and CEV to be demonstrated and explained during Science Labs

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**Week 1: Atmosphere, Mountain Effect, Sea Breeze**

**Week 2: Phases of Matter (melting, freezing, evaporation)**

**Week 3: Physical, Chemical Changes**

**Week 4: Chemical Changes (Reactivity)**

**Week 5: Energy (Potential/Kinetic; Conduction, Convection, Radiation)**

**Week 6: (Makeup, Thanksgiving Week)**

**Week 7: Planets (Revolution Party)**

**Week 8: Star Lab (Telescopes)**

## Week 9: Exhibit Prep (Telescopes for Blake)

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Script for Video Hook:

Mad Scientist (think Kramer from Seinfeld) pleas for help:

Young scientists of Normal Park,

I have come to you for help. What I'm about to tell you is mind-blowing, literally, Earth-shattering information! But first, a little background...

About 20 years ago, I started doing some research on the sustainability of Earth...what I mean is that Earth has certain things about it that make it suitable for people and animals and plants to live...(run fingers through crazy hair) you know, cool stuff like oxygen and nitrogen, sunlight and water, food to eat and then there's this other stuff- stuff like gravity and matter, matter and energy, and energy interacting with matter! IT'S AWESOME!!

But then I noticed some other stuff happening; stuff like earthquakes and tsunamis, BIG STUFF! (run fingers through crazy hair) Little stuff too- like the magnetic poles shifting on Earth, that fact that the length of a day, and the length of a year seems to be off as if Earth is shifting out of its orbit. Didn't you notice how close the Moon looked to Earth last month?

Needless to say, I ran some calculations and the prediction is NOT good. I repeat, the prediction is NOT GOOD!! I talked to the folks in Washington. I called NASA. I even called the Weather Channel, and no one, I repeat, NO ONE will listen to me. I heard you're getting ready to study all this information in Science, and so, I am begging you to listen and help!

You know the movie, Wall-E? (whisper loudly) well...it's real. It's happening. Earth is slowly dying and one day, we won't be able to live here anymore. But I have a plan. I've sent out my very own space probe on a TOP SECRET mission to find another suitable planet for us to inhabit, and (whisper) I've FOUND one. It's not in our solar system. It is far, far away. Each week, I'm going to send you some information I receive back from the probe, and I need you to analyze it and try to decide if that planet is going to be suitable for us to inhabit. From the inner core to the heights of the atmosphere, it has to be JUST RIGHT for life. This is your mission if you choose to accept it. If not, well then, (hands and hair go crazy) just enjoy what's left of the sunny blue skies and green grass before it goes BOOM- (teacher cuts off video at this point)

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### Earth & Weather Sum It Up! Review Guide

1. Plate Boundaries:

A. \_\_\_\_\_ Boundary

- 1) Example:
- 2) Describe the movement

B. \_\_\_\_\_ Boundary

- 1) Example:
- 2) Describe the movement

C. \_\_\_\_\_ Boundary

- 1) Example:
- 2) Describe the movement

D. \_\_\_\_\_ Boundary

- 1) Example:
- 2) Describe the movement

2. Forces of nature that change the Earth:

A. \_\_\_\_\_  
- Explain how it effects Earth:

B. \_\_\_\_\_  
- Explain how it effects Earth:

C. \_\_\_\_\_  
- Explain how it effects Earth:

D. \_\_\_\_\_  
 - Explain how it effects Earth:

3. Draw, label, and explain a rain shadow.  
 Lesson 14 Video: Chart to create in notebook

Topic (the Big Idea)	Details	Response (thoughts, connections, questions)

Table Matters  
 Lessons 6 and 7

	Energy	Volume	Change
Gas			
Liquid			
Solid			

ALL SUMMER IN A DAY

by Ray Bradbury

*Imagine living on a planet where rain falls continuously, except for two hours every seven years, when the sun comes out. Such is life on the planet Venus as science fiction writer Ray Bradbury imagines it. Although life on Venus is much different from that on Earth, the people he describes are the same as any of us.*

"Ready?"  
 "Now?"  
 "Soon."  
 "Do the scientists really know? Will it happen today, will it?"  
 "Look, look; see for yourself!"

The children pressed to each other like so many roses, so many weeds, intermixed, peering out for a look at the hidden sun.

It rained.

It had been raining for seven years; thousands upon thousands of days compounded and filled from one end to the other with rain, with the drum and gush of water, with the sweet crystal fall of showers and the concussion of storms so heavy they were tidal waves come over the islands. A thousand forests had



been crushed under the rain and grown up a thousand times to be crushed again. And this was the way life was forever on the planet Venus, and this was the schoolroom of the children of the rocket men and women who had come to a raining world to set up civilization and live out their lives.

"It's stopping, it's stopping!"  
"Yes, yes!"

Margot stood apart from them, from these children who could never remember a time when there wasn't rain and rain and rain. They were all nine years old, and if there had been a day, seven years ago, when the sun came out for an hour and showed its face to the stunned world, they could not recall. Sometimes, at night, she heard them stir, in remembrance, and she knew they were dreaming and remembering gold or a yellow crayon or a coin large enough to buy the world with. She knew they thought they remembered a warmth, like a blushing in the face, in the body, in the arms and legs and trembling hands. But then they always awoke to the tattering drum, the endless shaking down of clear bead necklaces upon the roof, the walk, the gardens, the forests, and their dreams were gone.

All day yesterday they had read in class about the sun. About how like a lemon it was, and how hot. And they had written small stories or essays or poems about it:

I think the sun is a flower;  
That blooms for just one hour:

That was Margot's poem, read in a quiet voice in the still classroom while the rain was falling outside.

"Aw, you didn't write that!" protested one of the boys.  
"I did," said Margot, "I did."  
"William!" said the teacher.

But that was yesterday. Now the rain was slackening, and the children were crushed in the great thick windows.

"Where's teacher?"  
"She'll be back."  
"She'd better hurry; we'll miss it!"

They turned on themselves, like a feverish wheel, all tumbling spokes.

Margot stood alone. She was a very frail girl who looked as if she had been lost in the rain for years and the rain had washed out the blue from her eyes and the red from her mouth and the yellow from her hair. She was an old photograph dusted from an album, whitened away, and if she spoke at all her voice would be a ghost. Now she stood, separate, staring at the rain and the loud wet world beyond the huge glass.

"What're you looking at?" said William.  
Margot said nothing.  
"Speak when you're spoken to." He gave her a shove. But she did not move; rather she let herself be moved only by him and nothing else.

They edged away from her, they would not look at her. She felt them go away. And this was because she would play no games with them in the echoing tunnels of the underground city. If they tagged her and ran, she stood blinking after them and did not follow. When the class sang songs about happiness and life and games her lips barely moved. Only when they sang about the sun and the summer did her lips move as she watched the drenched windows.

And then, of course, the biggest crime of all was that she had come here only five years ago from Earth, and she remembered the sun and the way the sun was and the sky was when she was four in Ohio. And they, they had been on Venus all their lives, and they had been only two years old when last the sun came out and had long since forgotten the color and heat of it and the way it really was. But Margot remembered.

"It's like a penny," she said once, eyes closed.

"No it's not!" the children cried.

"It's like a fire," she said, "in the stove."

"You're lying, you don't remember!" cried the children.

But she remembered and stood quietly apart from all of them and watched the patterning windows. And once, a month ago, she had refused to shower in the school shower rooms, had clutched her hands to her ears and over her head, screaming the water mustn't touch her head. So after that, dimly, dimly; she sensed it, she was different and they knew her difference and kept away.

There was talk that her father and mother were taking her back to Earth next year; it seemed vital to her that they do so, though it would mean the loss of thousands of dollars to her family. And so, the children hated her for all these reasons of big and little consequence. They hated her pale snow face, her waiting silence, her thinness, and her possible future.

"Get away!" The boy gave her another push. "What're you waiting for?"

Then, for the first time, she turned and looked at him. And what she was waiting for was in her eyes.

"Well, don't wait around here!" cried the boy savagely: "You won't see nothing!"

Her lips moved.

"Nothing!" he cried. "It was all a joke, wasn't it?" He turned to the other children. "Nothing's happening today: Is it?"

They all blinked at him and then, understanding, laughed and shook their heads. "Nothing, nothing!"

"Oh, but," Margot whispered, her eyes helpless. "But this is the day, the scientists predict, they say, they know, the sun. . ."

"All a joke!" said the boy, and seized her roughly. "Hey, everyone, let's put her in a closet before teacher comes!"

"No," said Margot, falling back.

They surged about her, caught her up and bore her, protesting, and then pleading, and then crying, back into a tunnel, a room, a closet, where they slammed and locked the door. They stood looking at the door and saw it tremble from her beating and throwing herself against it. They heard her muffled cries. Then, smiling, they turned and went out and back down the tunnel, just as the teacher arrived.

"Ready, children?" She glanced at her watch.

"Yes!" said everyone.

"Are we all here?"

"Yes!"

The rain slackened still more.

They crowded to the huge door.

The rain stopped.

It was as if, in the midst of a film, concerning an avalanche, a tornado, a hurricane, a volcanic eruption, something had, first, gone wrong with the sound apparatus, thus muffling and finally cutting off all noise, all of the blasts and repercussions and thunders, and then, second, ripped the film from the projector and inserted in its place a peaceful tropical slide which did not move or tremor. The world ground to a standstill. The silence was so immense and unbelievable that you felt your ears had been stuffed or you had lost your hearing altogether. The children put their hands to their ears. They stood apart. The door slid back and the smell of the silent, waiting world came in to them.

The sun came out.

It was the color of flaming bronze and it was very large. And the sky around it was a blazing blue tile color. And the jungle burned with sunlight as the children, released from their spell, rushed out, yelling, into the springtime.

"Now, don't go too far," called the teacher after them. "You've only two hours, you know. You wouldn't want to get caught out!"

But they were running and turning their faces up to the sky and feeling the sun on their cheeks like a warm iron; they were taking off their jackets and letting the sun burn their arms.

"Oh, it's better than the sunlamps, isn't it?"

"Much, much better!"

They stopped running and stood in the great jungle that covered Venus, that grew and never stopped growing, tumultuously, even as you watched it. It was a nest of octopi, clustering up great arms of flesh-like weed, wavering, flowering this brief spring.

It was the color of rubber and ash, this jungle, from the many years without sun. It was the color of stones and white cheeses and ink, and it was the color of the moon.

The children lay out, laughing, on the jungle mattress, and heard it sigh and squeak under them, resilient and alive. They ran among the trees, they slipped and fell, they pushed each other, they played hide-and-seek and tag, but most of all they squinted at the sun until the tears ran down their faces, they put their hands up to that yellowness and that amazing blueness and they breathed of the fresh, fresh air and listened and listened to the silence which suspended them in a blessed sea of no sound and no motion. They looked at everything and savored everything. Then, wildly, like animals escaped from their caves, they ran and ran in shouting circles. They ran for an hour and did not stop running.

And then-

In the midst of their running one of the girls wailed.

Everyone stopped.

The girl, standing in the open, held out her hand.

"Oh, look, look," she said trembling.

They came slowly to look at her opened palm. In the center of it, cupped and huge, was a single raindrop.

She began to cry; looking at it.

They glanced quietly at the sky.

"Oh.Oh."

A few cold drops fell on their noses and their cheeks and their mouths. The sun faded behind a stir of mist. A wind blew cool around them. They turned and started to walk back toward the underground house, their hands at their sides, their smiles vanishing away.

A boom of thunder startled them and like leaves before a new hurricane, they tumbled upon each other and ran. Lightning struck ten miles away, five miles away, a mile, a half mile. The sky darkened into midnight in a flash.

They stood in the doorway of the underground for a moment until it was raining hard. Then they closed the door and heard the gigantic sound of the rain falling in tons and avalanches, everywhere and forever.

"Will it be seven more years?"

"Yes. Seven."

Then one of them gave a little cry.

"Margot!"

"What?"

"She's still in the closet where we locked her."

"Margot."

They stood as if someone had driven them, like so many stakes, into the floor. They looked at each other and then looked away: They glanced out at the world that was raining now and raining and raining steadily. They could not meet each other's glances. Their faces were solemn and pale. They looked at their hands and feet, their faces down.

"Margot."

One of the girls said, "Well. . . ?" No one moved.

"Go on," whispered the girl.

They walked slowly down the hall in the sound of cold rain. They turned through the doorway to the room in the sound of the storm and thunder, lightning on their faces, blue and terrible. They walked over to the closet door slowly and stood by it.

Behind the closet door was only silence.

They unlocked the door, even more slowly, and let Margot out.