

**ITQ ARTS AND SCIENCE INTEGRATION  
GRADE 3  
THEATRE AND EARTH SCIENCE**

**Night Sky Tours  
“Sun, Moon and Stars” Investigations 3  
Lesson #1**

**CONTENT STANDARDS**

**Theatre**

- 1.1** Use the vocabulary of theatre, such as character, setting, conflict, audience, motivation, props, stage areas, and blocking, to describe theatrical experiences.
- 2.2** Participate in cooperative scriptwriting or improvisations that incorporate the 5 W’s.
- 5.2** Develop problem-solving and communication skills by participating collaboratively in theatrical experiences.

**Science**

- ES4c** Students know telescopes magnify the appearance of some distant objects in the sky, including the moon and the planets. The number of stars that can be seen through telescopes is dramatically greater than the number that can be seen by the unaided eye.

**ESSENTIAL QUESTIONS**

- What is improvisation?
- What is a prop?
- What makes telescopes useful to astronomers?
- What are some of the objects we see in the night sky?

**OBJECTIVES & STUDENT OUTCOMES** (*Students will...*)

- Improvise a short scene in a small group.
- Identify the tools of an actor as body, voice and imagination.
- Build upon another student’s idea or improvisational offer.
- Explain that astronomers use telescopes to magnify distant objects in the sky.
- Identify different objects in the night sky, including Earth’s moon, comets, the planets of our solar system, and stars in our galaxy.

**ASSESSMENT** (*Various strategies to evaluate effectiveness of instruction and student learning*)

- **Feedback for Teacher**
  - Improv Scene Observation
  - Video of Classwork
- **Feedback for Student**
  - Student/Teacher responses
  - Video of Classwork

**WORDS TO KNOW**

**Theatre Grade 3**

- **Actor:** A person, male or female, who performs a role in a play or an entertainment.
- **Audience:** People who watch, listen and respond to live theatre.
- **Improvisation:** A spontaneous style of theatre in which scenes are made up on the spot.
- **Prop** (properties): items carried on stage by an actor; small items on the set used by the actors.

**Earth Science Grade 3**

- **Astronomer:** A scientist who observes and studies objects in the universe including the stars, planets, comets, and moons.
- **Big Dipper:** A group of seven bright stars in the shape of a dipper.
- **Constellation:** A group of stars humans observe in a pattern and give a name.

- **Observatory:** A building that protects large telescopes. Observatories are often found on mountain peaks above the dust and pollution in the air.
- **Magnify:** To make an object appear larger in size.
- **Solar system:** The sun and the planets and other objects that orbit it.
- **Telescope:** An optical instrument that makes objects appear closer and larger.
- **Unaided eyes:** Looking at something without the use of a telescope or microscope.

## MATERIALS

- Bippity Bippity Hale-Bop Pictures (included)
- Props (properties): 8 telescope [which can be made from an empty paper towel roll or rolled construction paper] and 8 binoculars [which can be made from two empty toilet paper rolls or rolled construction paper]
- Binoculars and telescopes (for demonstration - toy versions will suffice)
- Science notebooks and pencil (1 per student)

## RESOURCES

- VAPA Core Learnings:  
[http://www.sandi.net/cms/lib/CA01001235/Centricity/Domain/176/standards/theater\\_3-5.pdf](http://www.sandi.net/cms/lib/CA01001235/Centricity/Domain/176/standards/theater_3-5.pdf)
- VAPA Grade 3 Theatre Lessons:  
[http://www.sandi.net/cms/lib/CA01001235/Centricity/Domain/176/lessons/theatre\\_3.pdf](http://www.sandi.net/cms/lib/CA01001235/Centricity/Domain/176/lessons/theatre_3.pdf)
- *FOSS Kit California Edition Grade 3*, “Sun, Moon and Stars” Investigations 3
- Online improvisation lesson videos: [http://www.ehow.com/video\\_4949233\\_improv-yes-lets.html](http://www.ehow.com/video_4949233_improv-yes-lets.html)
- The benefits of improv in addressing multiple intelligences web article.  
<http://www.improvwarrior.com/benefits.html>
- *Theatre Games for the Classroom*, Viola Spolin (available on Google Books at <http://tinyurl.com/spolinbook>)
- *Unscripted Learning, Using Improv Activities Across the K – 8 Curriculum*, Carrie Lobman and Matthew Lundquist
- *An Usborne Introduction Acting and Theatre*, C. Evans and L. Smith

## PREPARATION

- Review: Explain that **actors** have three tools to do their work: voice, body and imagination. Every time an **actor** does his/her work they must warm up using their tools.
- To warm up the voice:
  - With students, hum up and down the musical scale.
  - Have students repeat the following tongue twister: “See the star shine! See the star shower!” Repeat tongue twister softly, loudly, quickly, and slowly.
- To warm up the body:
  - Lead students through a physical warm up isolating different parts of the body and stretching. (rotate hands at wrist, roll shoulders backwards and forwards, rotate head at neck, gently swing hips from side to side, knee bends, rotate foot at ankle, lunges, stretching on tippy toes, hanging like a rag doll, slowly rolling up, shake each limb vigorously 8 times, then 4 times, then 2 times, then once)
- Safety Consideration: Remind students to never look directly at the sun.
- Have students look through the binoculars and telescope to experience seeing distant objects magnified by these tools.

## WARM UP *(Engage students, access prior learning, review, hook or activity to focus the student for learning)*

(10 minutes)

- Display and discuss with students the images from the Bippity Bippity Hale-Bop Pictures.
- Arrange the students into a large circle. Start the game with the teacher in the middle. To begin the game point to some someone on the circle and give them a verbal directive from the list below. The

players in the circle have to follow the verbal directive as quickly as possible or they will replace the person in the middle.

- When the a player makes a mistake, he/she becomes the person in the middle.
- At the beginning of the game the first verbal directive and interaction will be as follows:
  - The leader points to a player in the circle and says “Bippity Bippity Hale-Bopp,” the student must responds with “Hale-Bopp” before the leader finishes the phrase. (Hale-Bopp is the name of a comet).
  - If the leader points to a student and says simply “Hale-Bopp,” the student says nothing.
  - Repeat this process until the students become comfortable with the game sequence.
- Add the following verbal directives to the game. The leader in the middle of the circle continues the game inserting one of the following directives into the sequence. When the leader points to a student, the action will require the students directly to each side that chosen student to participate as well. If the verbal directive is:
  1. **astronomer** – The selected player kneels down and pantomimes making observations by looking through a telescope while the students on either side of him/her stretch their arms over the kneeling player forming the observatory.
  2. **observatory** – The selected player bends at the waist at a 45<sup>0</sup> while students on either side form the dome over the bending student.
  3. **solar system** – The selected player stretches hands out sideways as the students on either side orbit (walk) around that student.
  4. **Big Dipper** – The selected player bends at the waist stretching hands straight up over his/her head to form the handle as the two students from both sides kneel down in front forming the bowl part of the dipper.
- Continue the game until everyone has had a chance to be given a directive by the leader in the middle. Note: this activity is engaging for students so keep an eye on the clock for time management. This exercise may be used throughout the week when students come in from recess or when transitioning from other activities to get them focused.

### **MODELING** (*Presentation of new material, demonstration of the process, direct instruction*)

(15 minutes)

- Tell students that one way **actors** warm up their imaginations is to play **improvisation** games.
- Introduce the vocabulary word **improvisation**.
- Say:
  - *Although improvisation means acting without a script or a plan it does have rules. Much like a sport, you may now what’s going to happen during a game but everyone starts out knowing the rules. The most important rule of improvisation is to agree with and build on what your acting partners says or does. We call this the “yes and…” rule.*
- Remind students there are other standard game rules and expectations such as:
  - Keep subject matter school-appropriate.
  - No put-down humor, potty language, references to drugs and/or violence, etc.
  - Support your fellow actors efforts.
- Introduce the storytelling **improvisation** called, “Yes, and…” This game is the foundational principal of **improvisation**, accepting your acting partner’s idea and building on it.
- Ask students what happens if you are going to **improvise** a scene and you start it by saying, “Oh my goodness, aren’t you the famous astronomer Neil Degrasse Tyson?” Your partner denies this and says, “No, I’m not.” The scene comes grinding to a stop. In this game we will always accept what our partner says or does and add to it.
- Arrange students in a circle or allow them to stay at their desks but establish a rotational pattern to follow for this exercise. Have them recall when they did investigation on the stars. Ask appropriate review questions to check for understanding.
- The teacher starts the storytelling with an opening statement.
- Say: *The other day we did a science investigation.*
- The next person in the circle may say something like: *Yes, and it was an investigation about \_\_\_\_\_.* [The stars, moon, constellations]
- The next person may say: *Yes, and to do the investigation we needed \_\_\_\_\_.*

because\_\_\_\_\_. [A telescope, binoculars, our eyes/the objects in the sky were far away].

- Each person around the circle continues to add a statement about the investigation always beginning with “Yes, and.” Students must really listen to others and add on appropriately to the story.
- Continue until all students have participated. Encourage the final few students to find an ending to the story.
- Make sure that students have mentioned that binoculars and telescopes make it possible to see distant objects more clearly than with the unaided eye.
- Explain to students that an **improvisation**, like any piece of literature or theatre, is made up of different parts that form the beginning, middle and end. The beginning introduces the **characters** and the problem, the middle is where the **characters** try different things to solve the problem and the end is where the **characters** are successful or not and wrap up any loose ends.
- Tell students that today they are going to be **actor astronomer** who are giving a night sky tour to a group of 3<sup>rd</sup> grade students using one of the following: **props**, a **telescope** or binoculars. A third possible choice to observe the sky would be no prop, using their **unaided eyes** to report to the students the observations they have made of the night sky.
- Say:
  - As **actors** we use many of the same skills that astronomers use. **Astronomers** observe the night skies and use their powers of observation to report on what they see. As **actors** we also use our powers of observation to create characters and tell stories to report on what we see.

### **GUIDED PRACTICE** (*Application of knowledge, problem solving, corrective feedback*)

(20 minutes)

- Divide the class up into groups of three. Distribute labeled pictures of: *telescope*, *binocular*, and *unaided eyes* cards to each group of three.
- Explain to the students that while they are in groups of three, each one will take turns acting like an **astronomer** who will use one of the three methods of observing the night sky to give a tour of the sky.
- The way each **actor astronomer** looks at the night sky will be determined through a random drawing of three cards: one card will say **telescope**, another will say *binoculars* and the third will say **unaided eyes**.
- Tell students they need to remember they have an audience, which are the two others in their groups.
- Establish with the students the following basic guidelines for their short improvisation.
  - Each **actor astronomer** introduces him or herself to their audience.
  - Each **actor astronomer** should do their best to act like an adult using their voice and body.
  - Each **actor astronomer** should explain what tool he/she will be using to observe the night sky (**unaided eyes**, **astronomers**, **telescope**, or binoculars) and explain its benefits or drawbacks.
    - If **astronomers** choose no **prop** and use **unaided eyes** they need to remember that they can only report out what they see with just their eyes.
    - If they use *binoculars* as their props they should think about and share what they imagine they could see in the sky. [e.g., the moon craters, planets, comets, stars and constellations]
    - If they use a **telescope** then they should be able to, as **astronomers**, observe and report about stars farther away, see the planets in our **solar system** and possibly different types of stars.
  - Each **actor astronomer** should guide their audience to look at different parts of the sky and explain what they are seeing
  - The audience should be encouraged to ask the **actor astronomer** questions about what they are imagining they are seeing in the night sky. (e.g., What color is the object? What does it look like? What is its shape? How large is it compared to other objects around it? Is it moving? How can you tell it is moving?)
  - At the end of each sky tour the **actor astronomer** appropriately concludes the tour and introduces the next astronomer until all three students have had a turn to play the part of **actor astronomer**.
- Tell the students that after each sky tour, the next **astronomer** must either use a different **prop** or no **prop**.

- If possible video **improv** scenes for review in the debrief section at the end of the lesson.

**DEBRIEF AND EVALUATE** (*Identify problems encountered, ask and answer questions, discuss solutions and learning that took place. Did students meet expected outcomes?*)

(5 minutes)

- Bring the groups back together and have them report out.
- Ask:
  - *What **props** did you use in your **improvisation**?*
  - *How did the **props** help the **audience** to understand what you were doing when you were an **astronomer**?*
  - *How do **binoculars** and **telescopes** help astronomers to observe the night sky?*
  - *What kinds of words did you use to describe the night sky when you used the **telescope prop**? The **binocular prop**? Your **unaided eyes**?*
  - *What is the most important rule of improvisation?*
- If possible, show the video clips of selected performances to support student feedback and encourage reflection.
- Have students respond to the following prompt in their science notebooks:
  - *How do **binoculars** and **telescopes** help astronomers to observe the night sky?*

**EXTENSION** (*Expectations created by the teacher that encourages students to participate in further research, make connections and apply understanding and skills previously learned to personal experiences.*)

- Use “Yes, and…” with other curriculum areas and as a pre-writing exercise.
- Using the same technique where students create simple staged performances from other curricular areas.

## Bippity Bippity Hale-Bop Pictures

Astronomer looking through telescope



<http://www.udel.edu/udaily/2009/may/images/MtCubaObservatory15TB.jpg>

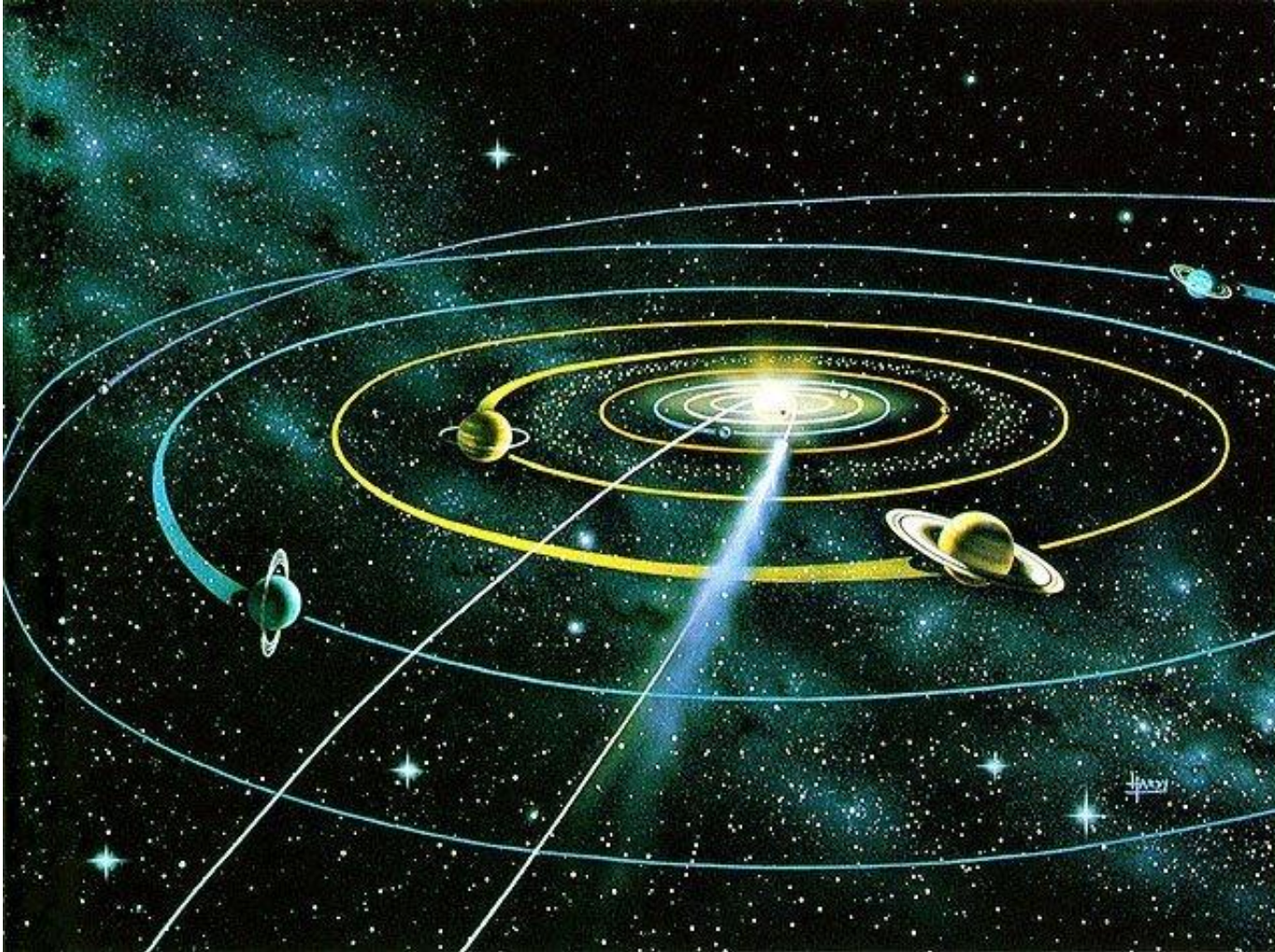


## Observatory



[http://4.bp.blogspot.com/\\_QSnDwehJm78/TUE2EfcSXR1/AAAAAAAAABKA/fCQPqPXFwtE/s1600/GriffithObservatoryLosAngeles.jpg](http://4.bp.blogspot.com/_QSnDwehJm78/TUE2EfcSXR1/AAAAAAAAABKA/fCQPqPXFwtE/s1600/GriffithObservatoryLosAngeles.jpg)

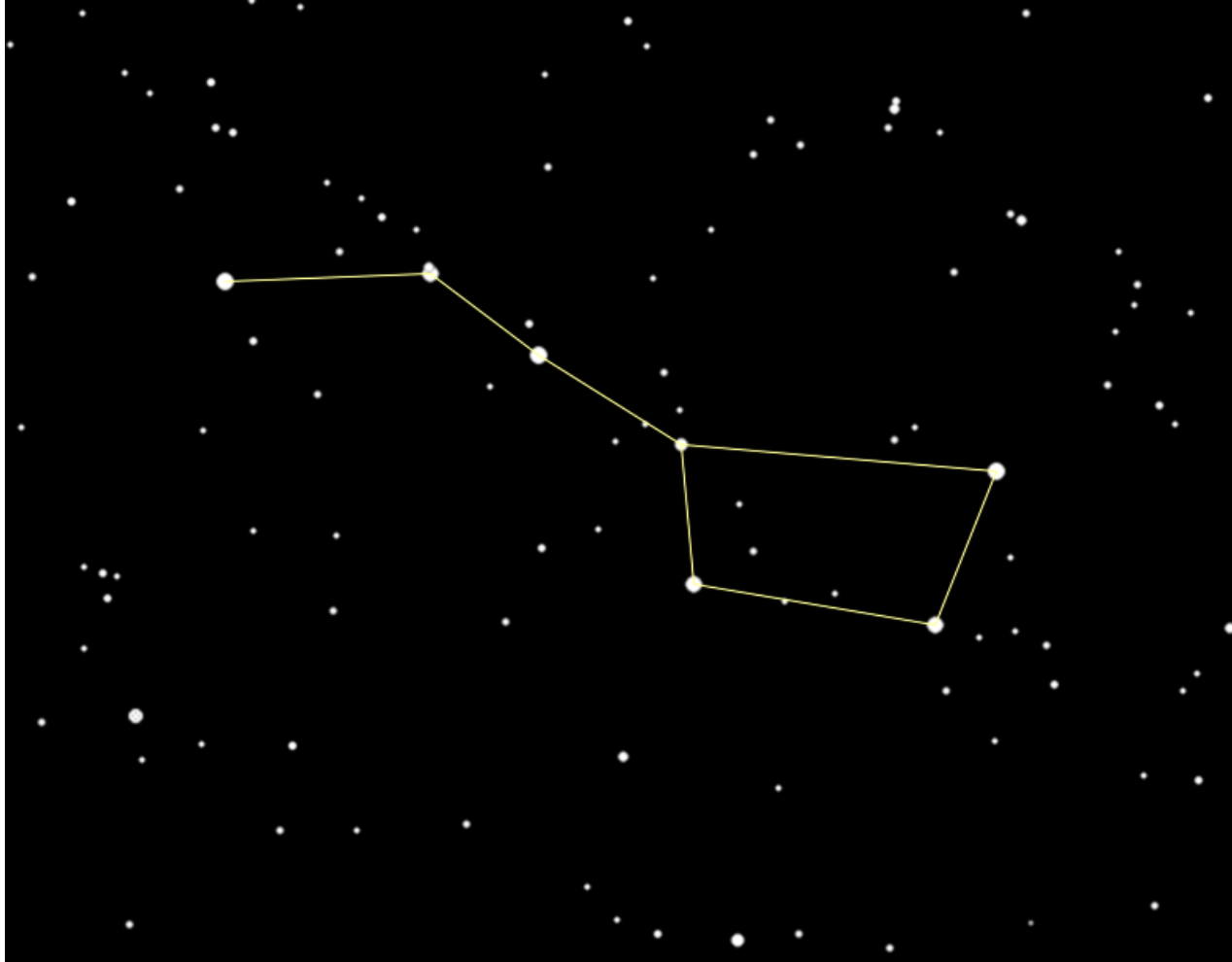
## Solar System



[http://www.enterprisemission.com/\\_articles/05-14-2004\\_Interplanetary\\_Part\\_1/Solar%20System.jpg](http://www.enterprisemission.com/_articles/05-14-2004_Interplanetary_Part_1/Solar%20System.jpg)



## Big Dipper (Ursa Major)



<http://my.execpc.com/60/B3/culp/astronomy/fig/BigDipper.gif>