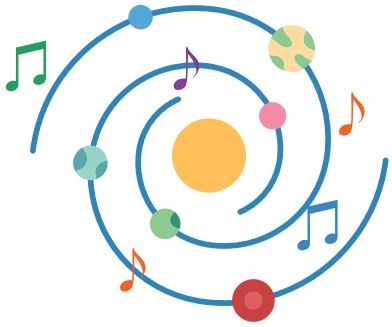
EXPLORE & GROW:

EARTH AND SPACE



2024-2025 Study Guide

www.fwsymphony.org

TABLE OF CONTENTS

Concert Guide	**p1-2**
Orchestra seating Chart	**p3**
Concert Repertoire	**p4**
Meet the Conductor	**p5**
Lesson Plan: 3rd-4th grade	**p6-14**
Lesson Plan: 5th grade	**p15-29**
Lesson Plan: 6th grade	**p30-40**

CONCERT ETIQUETTE GUIDE

Concert Insight

Orchestras typically play "classical" music, but most people hear orchestra music regularly without even realizing it! Movies, video games, TV shows, and other kinds of musicians like pop singers and rock stars and hip hop artists sometimes perform with orchestras.

The Fort Worth Symphony Orchestra has 68 fully professional musicians who play dozens of concerts together a year.

In a professional orchestra, musicians arrive to the first rehearsal fully prepared to play their parts individually and with knowledge of how their part is supposed to fit within the broader whole. The orchestra practices together one to five times together before they perform. They are like a pro sports team that has practiced together for years — everyone shows up ready to play their part perfectly.

In a professional orchestra, there is a music director, who conducts many of the concerts. For the other concerts, there are guest conductors. Different conductors have different styles and bring out different emotions in the music, sometimes even with the same piece of music.

Sometimes, there will be a soloist, or a musician who stands at the front of the stage to play a concerto, or a long solo part with the orchestra as accompaniment. These players are very, very skilled and travel all over the country or even the world to play with different orchestras.

Etiquette

During a concert, listeners are expected to sit quietly in their seats to enjoy the music and not distract their fellow listeners. They are "sharing" the space with each other. Phones should still be silent, and students are asked to speak quietly to not distract other students or the musicians onstage.

Things to Note: Music and Feelings

Classical music usually doesn't have words. This style is all about the feelings of the music.

Sometimes, the music will be fast and loud and exciting, with the whole orchestra playing together. Sometimes, it will be soft and slow and calming, with smaller groups of musicians playing together.

There is not a "right" way to feel classical music. All emotional responses are valid. Students of all ages can enjoy discussing the feelings of the music and why they think it made them feel that way.

Types of Music

Orchestras usually play more than one piece of music in a concert, and usually the different pieces are different types of compositions. Sometimes the pieces are continuous music, and sometimes they are broken into different sections or "movements."

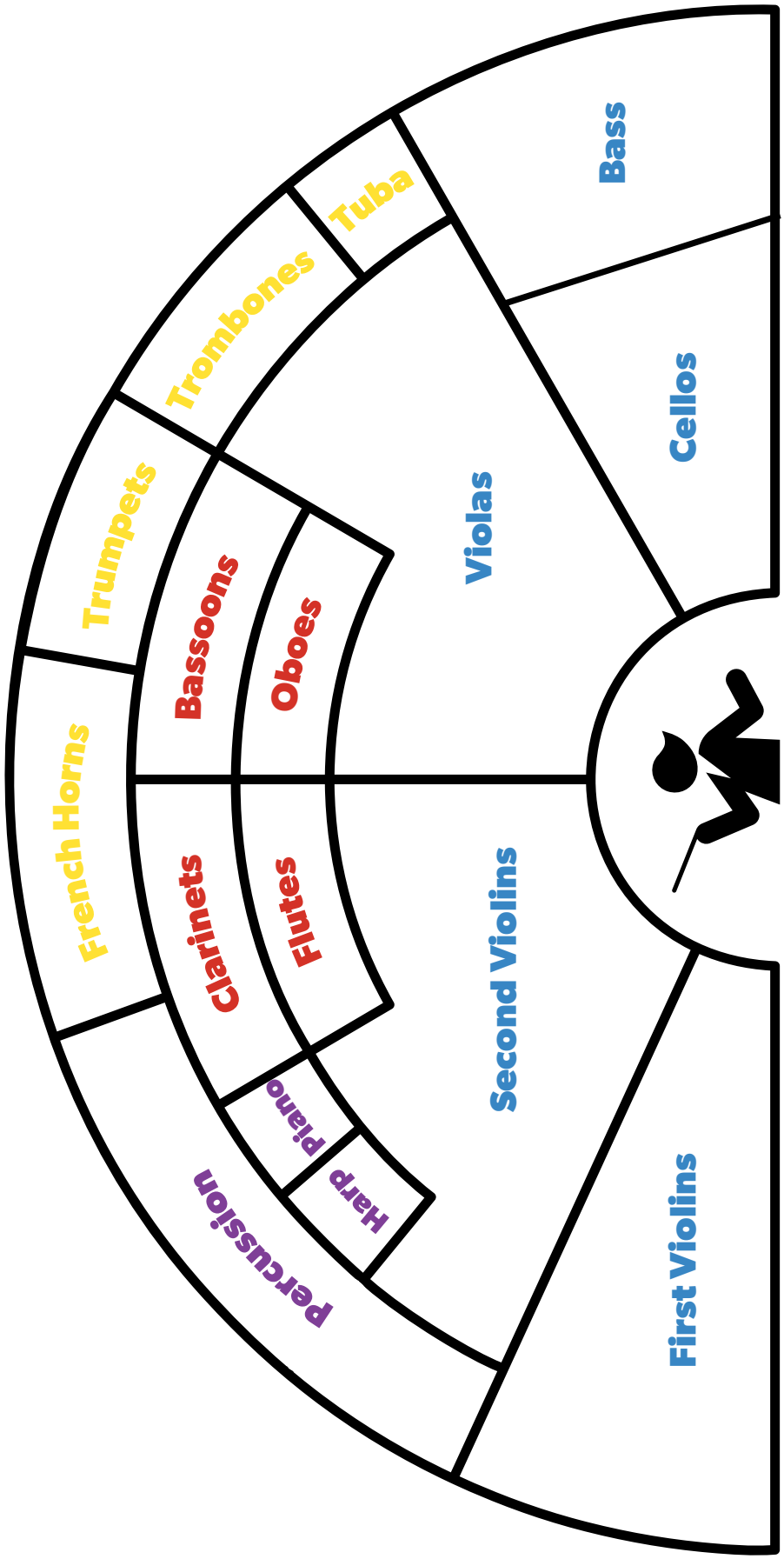
Often there is an "overture" or a shorter work to kick off the concert.

Another regular type of piece is a "concerto," which features one musician at the front of the stage. These often have very fast, difficult passages for the soloists to show off their stuff.

Finally, there is often a "symphony" on the second half of the program. These are generally multiple movements — the movements are meant to take listeners on an emotional journey.

There are many other kinds of pieces, and every program is different.

Classical Orchestra Seating Chart



CONCERT REPERTOIRE

Wolfgang Amadeus Mozart	Symphony No. 41 "Jupiter" IV.Finale: Molto Allegro
Jessie Montgomery	*Starburst*
Bedřich Smetana	The Moldau from Má vlast
Ludwig van Beethoven	Symphony No.6, Op.68 "Pastoral" IV. Thunderstorm
Ottorino Respighi	*Gli uccelli* [The Birds] V. The Cuckoo
Zequinha de Abreu (Arr. Walter Velazquez)	*Tico-Tico no Fubá*

Michelle Di Russo

FWSO Assistant Conductor

A graceful yet powerful force on the podium, Argentinian-Italian conductor Michelle Di Russo is known for her compelling interpretations, passionate musicality, and championing of contemporary music. She is on her first season as Associate Conductor with the Fort Worth Symphony and is a recipient of the 2024 The Solti Foundation U.S. Career Assistance Award. She is a former Dudamel Fellow with LA Philharmonic and conducting fellow with the Verbier Festival, Lucerne Festival, The Dallas Hart Institute, and Chicago Sinfonietta.

Di Russo recently finished her tenure as Associate Conductor with the North Carolina Symphony for three seasons and has guest conducted orchestras such as San Diego Symphony, Vermont Symphony, Portland Symphony, Knoxville Symphony and Delaware Symphony between others. Other engagements include acting as cover conductor for NY Philharmonic, National Symphony, Minnesota Orchestra, and St. Louis Symphony. She was also part of the the Taki Alsop mentoring program in 23/24.

What Musical Instrument do you play?

I play the piano and sing.

What does your preparation process look like?

It involves a lot of singing either at the piano or without it if I don't have access to it, to make sure I know the score really well (all the parts!) and then I go through identifying what are the tricky spots for the orchestra for me and how I will work on them

What/who inspired you to become a conductor?

I was mainly inspired by my love for music but it wasn't until I saw a female conductor pursuing a professional career (Marin Alsop) that I didn't think it was possible for me to do it as well.

Do you have any pre-show rituals?

I like to arrive early to the venue to get into the right mindset and I always bring a snack just in case I am tired in the intermission or beforehand as I don't like to have a full meal before conducting.

What advice would you give to students who aspire to become a conductor?

Keep going! even when it gets challenging or hard and remember why you like to be a musician, because you love music! don't lose the joy you have for it ever. Work hard, study and don;t get discouraged by the setbacks, learn from them!

Study Guide 3rd Grade

Learning Objective

Students will be able to create a song about the planets in the solar system, demonstrating their understanding of the characteristics and order of the planets.

Cross Curricular Connection

The students will be able to identify the planets and their order in our solar system and the characteristics of each planet.

Music Focus: Concepts & Skills emphasized

✓ Rhythm	✓ Vocabulary	□ Tone Color	□ Reading
✓ Melody	✓ Singing	✓ Form	✓ Listening
✓ Harmony	□ Movement	✓ Expressive Qualities	✓ Instruments

Music TEKS

Foundations: Music Literacy

B. Categorize and explain a variety of musical sounds, including those of woodwind, brass, string, percussion, and instruments from various cultures;

C. Use known music symbols and terminology referring to rhythm; melody; timbre; form; tempo; and dynamics, including mezzo piano and mezzo forte, to identify musical sounds presented aurally;

D. Identify and label small and large musical forms such a abac, AB, and ABA presented aurally in simple songs and larger works.

E. Read, write, and reproduce rhythmic patterns using standard notation, including four sixteenth notes, whole notes, whole rests, and previously learned note values in 2/4 and 4/4 meters as appropriate;

F. Read, write, and reproduce extended pentatonic melodic patterns using standard staff notation; C. identify new and previously learned music symbols and terms referring to tempo and dynamics, including mezzo piano and mezzo forte.

Creative Expression

A. Sing or play classroom instruments with accurate intonation and rhythm independently or in groups;
D. Perform simple part work, including rhythmic and melodic ostinati, derived from known repertoirel
F. Create rhythmic phrases through improvisation or composition;
G. Create melodic phrases through improvisation or composition;
H. Create simple accompaniments through improvisation or composition.

Historical and Cultural Relevance

B. Identify music from diverse genres, styles, periods, and cultures;
C. Identify the relationships between music and interdisciplinary concepts.

Critical Evaluation and Response

A. Exhibit audience etiquette during live and recorded performances;
C. Identify specific musical events in aural examples such as changes in timbre, form, tempo, or dynamics using appropriate vocabulary;

Science TEKS

(9) Earth and space:
The student knows there are recognizable objects and patterns in Earth's solar system.
The student is expected to:
(A) construct models and explain orbits of the Sun, Earth, and Moon in relation to each other; and
(B) identify the orders of the planets in Earth's solar system in relation to the Sun.

All text in red throughout the study guide are links

Assessment

Students will perform their planet songs in front of the class, demonstrating accurate knowledge of the planets and their order. They will also turn in a written copy of their song of lyrics.

Musical Space Activity

- Show a poster with images of the planets and ask students if they can name any of them.
- Once everyone has had a chance to answer, play a planet-themed song to capture students' interest and curiosity about the topic. (e.g., "The Planets" by Gustav Holst)

  Class discussion:

  - Facilitate a discussion about what instrument of the orchestra was chosen to represent each planet.
  - Discuss the order in which the composer decided to introduce the planets. Students offer suggestions as to the reasons Holst may have chosen to represent them in that particular order.

The Planet Song Activity

- Have students listen to the Planet Song and after have them identify facts about each planet.
- As a class, create an ongoing list of interesting facts about each planet as the lessons progress.

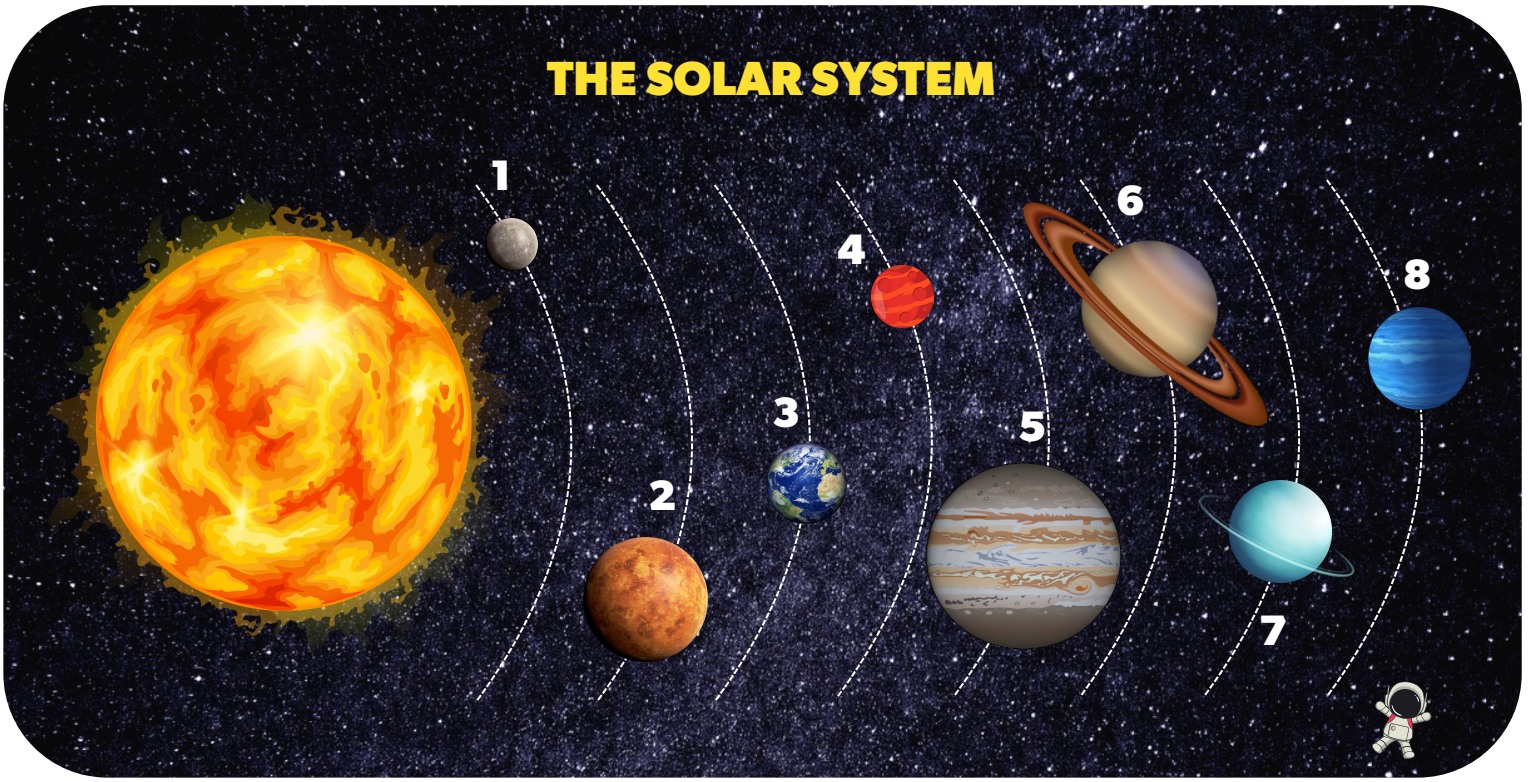
  Group Activity:
  Divide into cooperative groups and assign them each a planet or have them choose one. Each group will compose a song with given paraments about the assigned planet.

  Parameters for composition should consider length (how many measures, time signature, rhythms to use and how they match the lyrics), pitches available, dynamic levels, instrumentation, and form.

  As a closing activity, students will perform their planet songs to the class. After each performance, encourage students to share one interesting fact about the planet they sang about.

Extra Activities

- The Planets Rhythm Play Along Video
- The Planets CUPs Play Along
- The Planets Body Percussion



Label the names of the planets...

1. _____ **5.** _____

2. _____ **6.** _____

3. _____ **7.** _____

4. _____ **8.** _____

PLANETS IN OUR SOLAR SYSTEM

INTRODUCTION

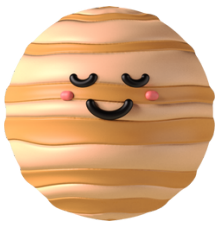
Many astronomers have attempted to discover the truth about our world and beyond; with the collective knowledge gained from these efforts, we have come to understand and continue to discover worlds beyond our own.

In this lesson, we will learn the fundamentals of our solar system's heavenly bodies and discover some of the most fascinating facts about stars, moons, and planets.
Note: Interactive slide option

MERCURY

Mercury, the smallest planet in our solar system and the closest to the Sun, is only slightly larger than Earth's Moon. The Sun would appear more than three times as large from the surface of Mercury as it does from Earth, and the sunlight would be up to seven times brighter.

VENUS



Venus is Earth's closest planetary neighbor and the second planet from the Sun. It is sometimes referred to as Earth's twin due to its size and density.

Even though Mercury is closest to the Sun, Venus is the hottest planet in our solar system; its surface temperature is approximately 475 degrees Celsius.

EARTH

Venus is Earth's closest planetary neighbor and the second planet from the Sun. It is sometimes referred to as Earth's twin due to its size and density.

Even though Mercury is closest to the Sun, Venus is the hottest planet in our solar system; its surface temperature is approximately 475 degrees Celsius.

MARS

Mars, often called the "Red Planet," is the fourth planet from the Sun in our solar system. Mars has a thin atmosphere primarily composed of carbon dioxide and experiences extreme temperature fluctuations. Along with having seasons, polar ice caps, canyons, and extinct volcanoes, Mars is dynamic.

Planets in Our Solar System Continued...

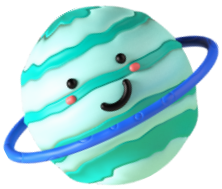
JUPITER

Jupiter is the largest planet in our solar system. It's recognized for its immense size, with a diameter over 11 times that of Earth. This gas giant has a powerful magnetic field, visible storms like the Great Red Spot, and a system of moons, the four largest of which are known as the Galilean moons.

SATURN

Saturn, often called the jewel of the solar system, is the second-largest planet and is known for its beautiful and prominent ring system. Saturn is a gas giant primarily composed of hydrogen and helium. Its rings are made up of countless particles of ice and dust, creating a breathtaking sight when viewed.

URANUS



The seventh planet from the Sun is Uranus. Like Jupiter and Saturn, Uranus has an atmosphere composed primarily of hydrogen and helium, but it also contains methane. Uranus rotates on its side, making its axis almost parallel to its orbital plane, which contributes to its unique seasons.

NEPTUNE

The Neptune, the eighth planet in our solar system, is primarily known for its bluish hue and is recognized as an “ice giant” due to its composition of icy substances. It’s the most distant planet in our solar system. The planet has 14 known moons, with Triton being the largest and most well-known among them.

Learning Activities

RESEARCH TASK

Your group will research and gather information about the planets in our solar system using reputable sources.

DATA COLLECTION

Using the information gathered, your group will complete a table detailing each planet (distance from the sun, diameter, number of moons, and any unique characteristics). Use planetary table on page 16-17

PRESENTATION

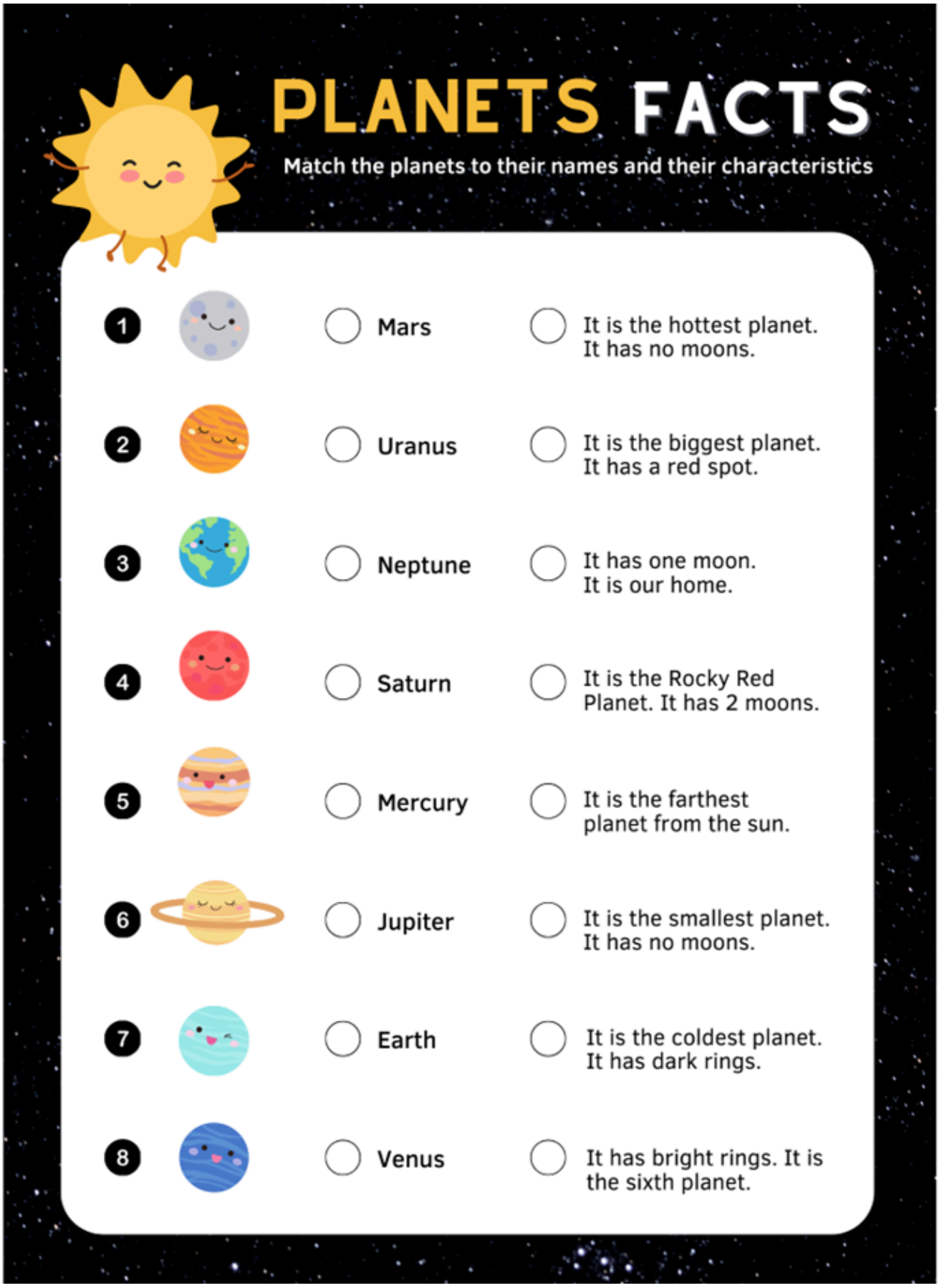
Your group will create a visually appealing table, ensuring all information is organized and presented clearly. You can use illustrations or graphics to enhance their presentation.

PLANETARY TABLE

Using the information gathered, your group will complete this table detailing each planet (distance from the sun, diameter, number of moons, and any unique characteristics).

PLANETARY TABLE		Using the information gathered, your group will complete this table detailing each planet (distance from the sun, diameter, number of moons, and any unique characteristics).	
			


PLANETS FACTS
Match the planets to their names and their characteristics
1
Mars
It is the hottest planet. It has no moons.
2
Uranus
It is the biggest planet. It has a red spot.
3
Neptune
It has one moon. It is our home.
4
Saturn
It is the Rocky Red Planet. It has 2 moons.
5
Mercury
It is the farthest planet from the sun.
6
Jupiter
It is the smallest planet. It has no moons.
7
Earth
It is the coldest planet. It has dark rings.
8
Venus
It has bright rings. It is the sixth planet.

Name: _____ Date: _____

The Solar System

Look at the pictures and circle the correct words

 The Sun / The Satellite	 The Comet / The Moon
 Venus / Neptune	 Mars / Mercury
 Jupiter / Saturn	 Mercury / Venus
 Earth / Uranus	 Earth / Uranus
 Uranus / Mercury	 Saturn / Venus

Study Guide: 4th & 5th Grade

Learning Objective

Students will be able to create a song about Earth's natural resources, highlighting their importance and ways to conserve them.

Cross Curricular Connection

The students will discuss how conservation is the responsible use and preservation of natural resources and relate how music connects to this concept through developing awareness for conservation.

Music Focus: Concepts & Skills emphasized

✓ Rhythm	✓ Vocabulary	☐ Tone Color	☐ Reading	✓ Creating/Improvising
✓ Melody	✓ Singing	✓ Form	✓ Listening	
✓ Harmony	☐ Movement	✓ Expressive Qualities	✓ Instruments	

Music TEKS

<u>Foundations: Music Literacy</u>

B. Categorize and explain a variety of musical sounds, including those of woodwind, brass, string, percussion, keyboard, electronic instruments, and instruments from various cultures;

C. Use known music symbols and terminology referring to rhythm; melody; timbre; form; tempo; and dynamics, including crescendo and decrescendo; and articulation, including staccato and legato, to explain musical sounds presented aurally;

D. Identify and label small and large musical forms such a abac, AB, and ABA presented aurally in simple songs and larger works.

E. Read, write, and reproduce rhythmic patterns using standard notation, including separate eighth notes, eighth- and sixteenth-note combinations, dotted half note, and previously learned note values in 2/4, 4/4, and 3/4 meters as appropriate;

F. Read, write, and reproduce extended pentatonic melodic patterns using standard staff notation;

G. Identify new and previously learned music symbols and terms referring to tempo; dynamics, including crescendo and decrescendo; and articulation, including staccato and legato.

<u>Creative Expression</u>

A. Sing or play classroom instruments with accurate intonation and rhythm independently or in groups;

D. Perform simple part work, including rhythmic and melodic ostinati, derived from known repertoire;

F. Interpret through performance new and previously learned music symbols and terms referring to tempo; dynamics, including crescendo and decrescendo; and articulation, including staccato and legato.

G. Create rhythmic phrases through improvisation or composition;

H. Create melodic phrases through improvisation or composition;

I. Create simple accompaniments through improvisation or composition.

<u>Historical and Cultural Relevance</u>

C. Identify and describe music from diverse genres, styles, periods, and cultures;

D. Examine the relationships between music and interdisciplinary concepts.

Music TEKS Continued...

Critical Evaluation and Response

A. Exhibit audience etiquette during live and recorded performances;

B. Recognize known rhythmic and melodic elements in aural examples using appropriate vocabulary;

F. Describe specific musical events in aural examples such as changes in timbre, form, tempo, dynamics, or articulation using appropriate vocabulary;

E. Describe a variety of compositions and formal or informal musical performances using specific music vocabulary;

F. Justify personal preferences for specific music works and styles using music vocabulary.

Science TEKS

(9) Earth and space:
The student understands how natural resources are important and can be managed.
The student is expected to:
(A) Identify and explain advantages and disadvantages of using Earth's renewable and nonrenewable natural resources such as wind, water, sunlight, plants, animals, coal, oil, and natural gas;
(B) Explain the critical roles of energy resources to modern life and how conservation, disposal, and recycling of natural resources impact the environment;

Assessment

Students will perform their original songs in front of the class, incorporating key points about Earth's natural resources and conservation.

All text in red throughout the study guide are linked

ACTIVITIES

Count on Trees

Play the song "**You can Count on Trees"** and have students demonstrate appropriate audience etiquette while listening to the message of the song and identifying the popular melody (Count on Me by Bruno Mars).

Group Activity:

- Facilitate a discussion about how music can convey important messages to the audience and share ideas of what the message in the parody is (taking care of the Earth).
- Students will form partnerships or cooperative groups to discuss what the Earth's natural resources are and why they are important. Write ideas on a chart or piece of paper to refer to later.
- In the same cooperative groups students will compose a song with given parameters about the conservation of natural resources.
- Parameters for composition should consider length (how many measures, time signature, rhythms to use and how they match the lyrics), pitches available, dynamic levels, instrumentation, and form.

𝄞 Use the Recycle! Recycle! Rhythm play along and the body percussion Garden Song play along to get ideas for possible instrumentation and rhythmic motives.

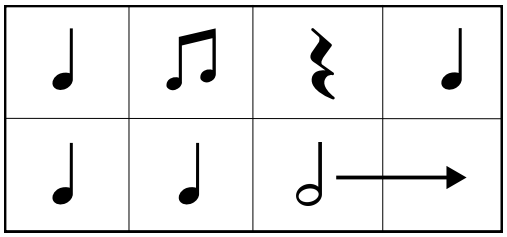
Group Song Performance

Each group will perform their song in front of the class. After each performance, the class will give constructive feedback and praise for the creative ideas and incorporation of key points. The Teacher will lead a brief class discussion summarizing the main ideas expressed in their songs.

Rhythm Worksheet

Create rhythms by filling in each box with notes and rests. 1 square= 1 beat

Example:



EARTH DAY QUIZ QUESTIONS

Answer the following questions about Earth Day.

1. When is Earth Day celebrated annually?
2. What is the main purpose of Earth Day?
3. In what year did Earth Day become a global event, with participation from countries around the world?
4. Which symbol is commonly associated with Earth Day and environmental awareness?
5. What was the theme of Earth Day 2022?
6. Which environmental organization plays a significant role in coordinating Earth Day activities worldwide?
7. What is the significance of the "Billion Acts of Green" campaign related to Earth Day?
8. What are some common activities people participate in on Earth Day to make a positive impact on the environment?
9. Which endangered marine animal is often associated with Earth Day due to its conservation efforts?
10. What is the term for the practice of reducing waste by using items again, such as glass bottles or shopping bags, rather than disposing of them after one use?
11. What is the name of the international agreement aimed at combating climate change and protecting the planet, which was signed in 2016?
12. Which famous landmark around the world usually participates in Earth Hour by switching off its lights for one hour to raise awareness about climate change?
13. What is the term for the loss of a species from a particular habitat or from the entire planet?
14. What is the largest source of marine pollution that poses a significant threat to ocean ecosystems?

EARTH DAY ANSWER KEY

Answer the following questions about Earth Day.

1. Earth Day is celebrated on April 22nd every year.
2. *The main purpose of Earth Day is to raise awareness and promote environmental protection and sustainability.*
3. *Earth Day became a global event in 1990.*
4. *The Earth Day flag, featuring a picture of the Earth, is commonly associated with the event.*
5. *The theme of Earth Day 2022 was "Invest in Our Planet."*
6. *The Earth Day Network is a prominent organization that coordinates Earth Day activities globally.*
7. *The "Billion Acts of Green" campaign urges eco-friendly actions and aims for one billion recorded acts.*
8. *Activities can include tree planting, litter cleanups, recycling drives, and energy conservation efforts.*
9. *The sea turtle is often associated with Earth Day due to conservation efforts to protect their nesting sites and habitats.*
10. *The term for this practice is "reusability" or "reuse."*
11. *The international agreement is called the Paris Agreement.*
12. *The Sydney Opera House in Australia is known for participating in Earth Hour by turning off its lights.*
13. *The term for the loss of a species from a particular habitat or from the entire planet is "extinction."*
14. *Plastic pollution is the largest source of marine pollution, harming marine life and ecosystems.*

Name: _____ Date: _____

Earth Day

Look at the pictures and circle the correct words

 Landfill / Recycling plant	 Paper waste / Inorganic Waste
 Recycling bin / Recycling sign	 Organic waste / Chemical waste
 Organic waste / Recyclable waste	 Plastic waste / Organic waste
 Refillable bottle / Paper cup	 Solar panel / Rechargeable battery
 Reusable bag / Reusable cup	 Eco friendly bike / Motorbike

Name: _____ Date: _____

Earth Day

Look at the pictures and circle the correct words

 Earth / Mars	 Revitalize / Recycle
 Plants / Mountains	 Reuse / Conserve
 Land / Water	 Solar Panel / Garden
 Plant / Air	 Recyclable cup / Recycle tag
 Field / Forest	 Plastic bag / Reusable bag

Name Date Class Score

RENEWABLE VS NONRENEWABLE ENERGY RESOURCES

Renewable and nonrenewable energy resources are used in a variety of ways to power our daily lives, from generating electricity for homes and businesses to fueling transportation and manufacturing.

What is the definition of a natural resource? _____

What is the difference between a renewable and a nonrenewable natural resource?

Label each as renewable or nonrenewable:

GEOTHERMAL _____

PETROLEUM _____

HYDRO _____

COAL _____

WIND _____

BIOMASS _____

NUCLEAR _____

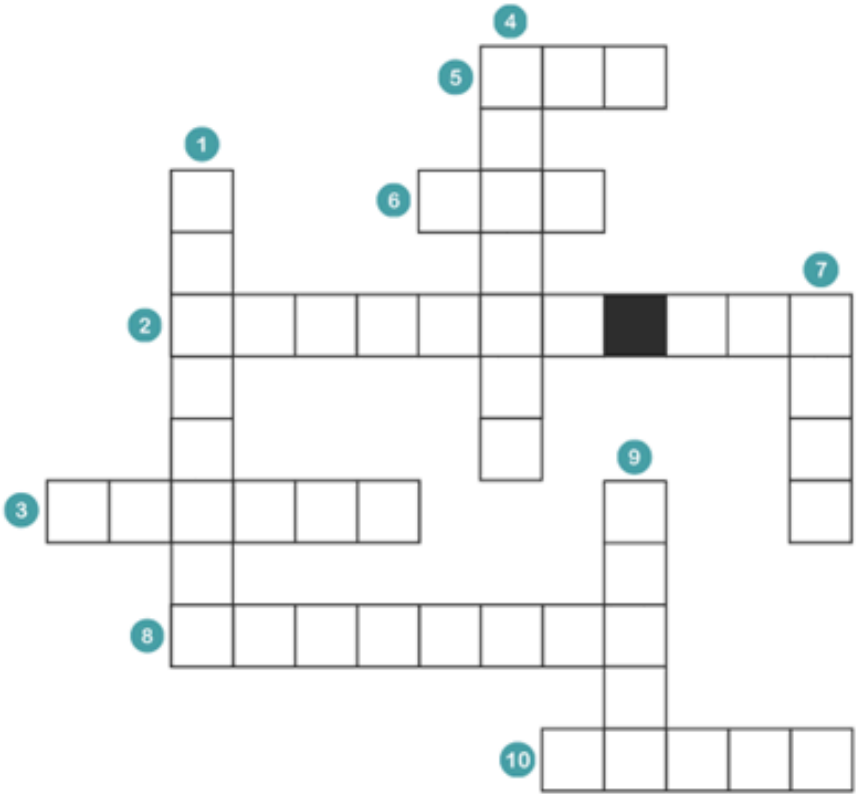
SOLAR _____

What are some of the effects of overusing natural resources? How can we conserve?

How does our use of these resources help or harm the environment? _____

Name: _____ Date: _____

Natural resources
CROSSWORD PUZZLE



1. A natural resource used to create metals.
2. A fossil fuel used for heating and generating electricity.
3. This resources gives us fruits and vegetables
4. We get milk, eggs and meat from them.
5. We use this natural resource to breathe.
6. A fossil fuel used to propel cars and other vehicles.
7. A resource used to provide the structural support to plants.
8. A resource that gives us heat, light and vitamin D.
9. A resource that we use to drink and wash things.
10. A resource that gives us wood to make paper and furniture.

Name: Date:

Natural Resources

1. What are natural resources? Define

2. Unscramble the following natural resources and write them.

1. ARI	_____	6. WETAR	_____
2. OLI	_____	7. AMINASL	_____
3. SILO	_____	8. PALTNS	_____
4. SILUNHGT	_____	9. TEERS	_____
5. MENILARS	_____	10. GSA	_____

3. Match the natural resources from the previous activity to their use

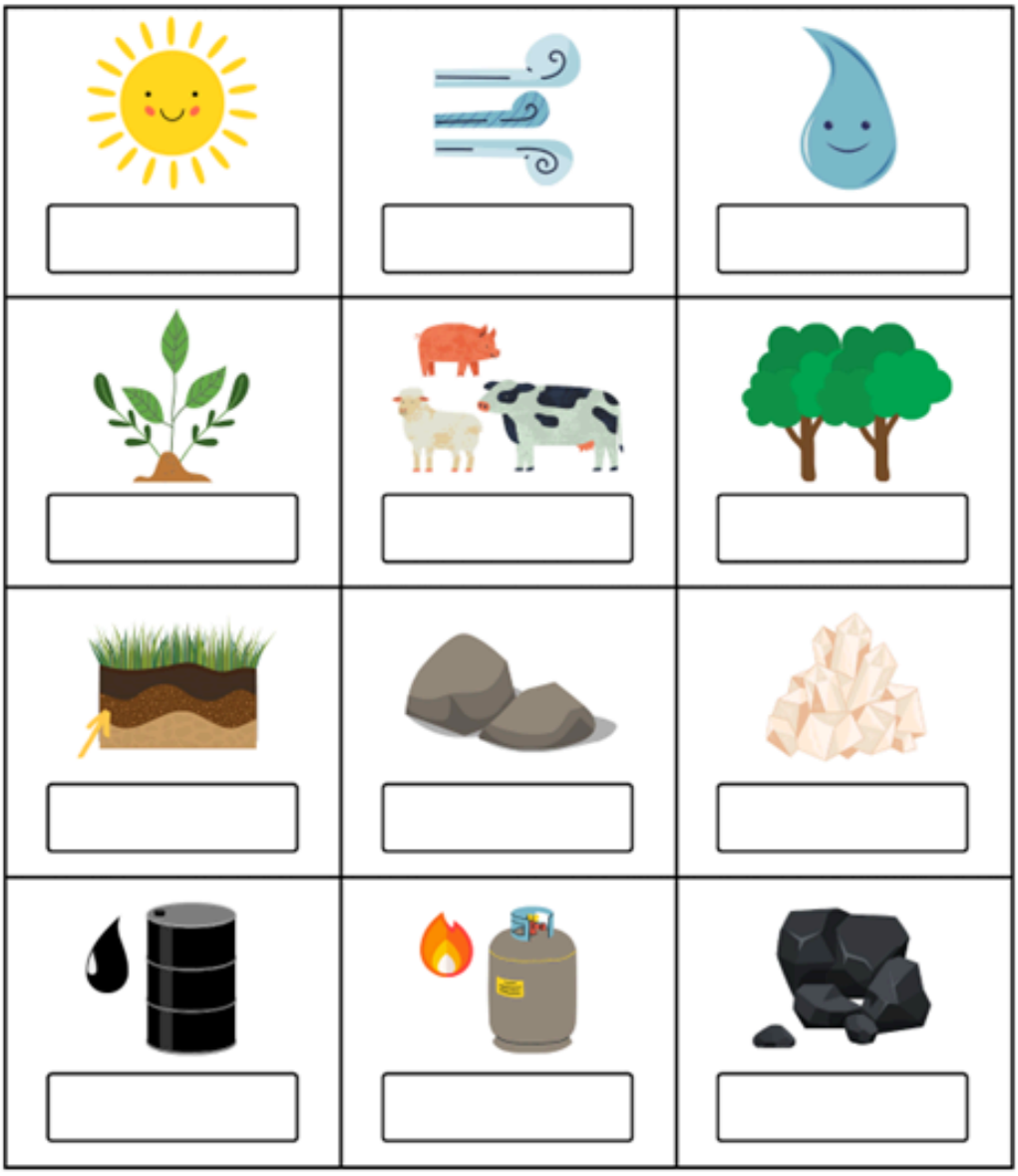
- ☐ We use this resource to drink and wash things.
- ☐ We use this resource to breathe and to fill tires and balloons.
- ☐ We use this resource to make paper and to build furniture and houses.
- ☐ We use this resource to get fruits and vegetables.
- ☐ We use this resource to grow plants and make bricks.
- ☐ We use this resource to get milk, eggs and meat and materials like wool.
- ☐ We use this resource to get vitamin D. It also gives us heat and light.
- ☐ We use this fossil fuel for heating and generating electricity.
- ☐ We use this resource to create metals
- ☐ We use this fossil fuel to move vehicles and to make plastic.

Name: _____ Date: _____

Natural Resources

Look at the pictures and write the words in the correct place

Air	Plants	Minerals	Rocks
Oil	Animals	Sunlight	Trees
Soil	Water	Natural Gas	Coal

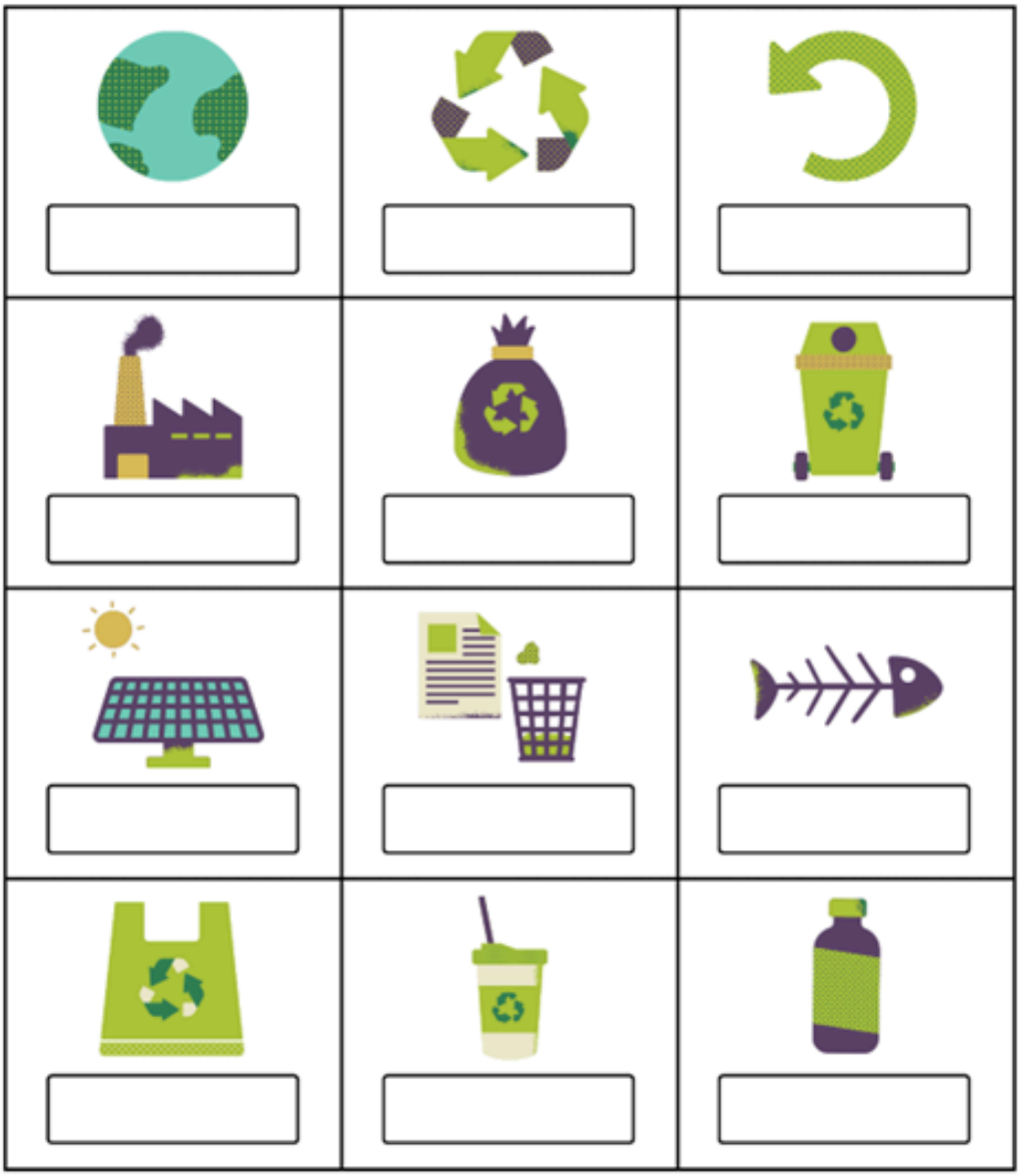


Name: _____ Date: _____

Sustainability

Look at the pictures and complete with the correct words from the box

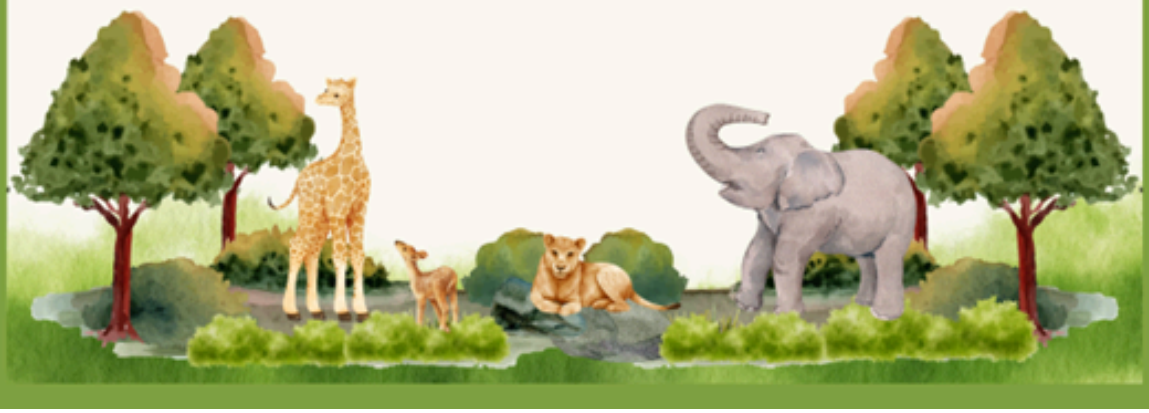
Earth	Recycle bin	Recyclable garbage	Reusable cup
Reuse	Solar panel	Recycling plant	Organic waste
Recycle	Paper waste	Refillable bottle	Recusable bag



Conservation

Do the research and fill in the mind table below! Write down your opinion using these prompts!

Stop	Reduce	Increase



Caring for the Rivers

Rivers serve as a primary source for a lot of things on earth, so taking care of this amazing body of water is needed. As part of the future generation, how will you take care of our rivers? List your answers in the boxes below.

Study Guide 6th Grade

Learning Objective

Students will be able to create a song about the planets in the solar system, demonstrating their understanding of the characteristics and order of the planets.

Cross Curricular Connection

The students will be able to identify the planets and their order in our solar system and the characteristics of each planet.

Music Focus: Concepts & Skills emphasized

✓ Rhythm	✓ Vocabulary	□ Tone Color	□ Reading
✓ Melody	✓ Singing	✓ Form	✓ Listening
✓ Harmony	□ Movement	✓ Expressive Qualities	✓ Instruments

Music TEKS

Foundations: Music Literacy

B. Categorize and explain a variety of musical sounds, including those of woodwind, brass, string, percussion, and instruments from various cultures;

C. Use known music symbols and terminology referring to rhythm; melody; timbre; form; tempo; and dynamics, including mezzo piano and mezzo forte, to identify musical sounds presented aurally;

D. Identify and label small and large musical forms such a abac, AB, and ABA presented aurally in simple songs and larger works.

E. Read, write, and reproduce rhythmic patterns using standard notation, including four sixteenth notes, whole notes, whole rests, and previously learned note values in 2/4 and 4/4 meters as appropriate;

F. Read, write, and reproduce extended pentatonic melodic patterns using standard staff notation; C. identify new and previously learned music symbols and terms referring to tempo and dynamics, including mezzo piano and mezzo forte.

Creative Expression

A. Sing or play classroom instruments with accurate intonation and rhythm independently or in groups;
D. Perform simple part work, including rhythmic and melodic ostinati, derived from known repertoire
F. Create rhythmic phrases through improvisation or composition;
G. Create melodic phrases through improvisation or composition;
H. Create simple accompaniments through improvisation or composition.

Historical and Cultural Relevance

B. Identify music from diverse genres, styles, periods, and cultures;
C. Identify the relationships between music and interdisciplinary concepts.

Critical Evaluation and Response

A. Exhibit audience etiquette during live and recorded performances;
C. Identify specific musical events in aural examples such as changes in timbre, form, tempo, or dynamics using appropriate vocabulary;

Science TEKS

(9) Earth and space:
The student understands the organization of our solar system and the relationships among the various bodies that comprise it.
The student is expected to:
(A) Describe the physical properties, locations, and movements of the sun, planets, moons, meteors, asteroids, and comets;
(B) Understand that gravity is the force that governs the motion of our solar system; and
(C) Describe the history and future of space exploration, including the types of equipment and transportation needed for space travel.

♩ **All text in red throughout the study guide are links**

Assessment

Students will perform their planet songs in front of the class, demonstrating accurate knowledge of the planets and their order. They will also turn in a written copy of their song of lyrics.

Musical Space Activity

- To start the lesson and capture students' interest, play a popular song related to space or the solar system, such as **"Space Oddity" by David Bowie** or **"Intergalactic" by Beastie Boys**.
  - ♬ After listening to the song, ask students what they noticed about the lyrics and how they related to space
  - ♬ Discuss the importance of using music to communicate information and express feelings.
- Show a poster with images of the planets and ask students if they can name any of them.

The Planets Group Activity

- Have students listen to **"The Planets" by Gustav Holst**
- Facilitate a discussion about what instrument of the orchestra was chosen to represent each planet.
- Discuss the order in which the composer decided to introduce the planets. Students offer suggestions as to the reasons Holst may have chosen to represent them in that particular order.
- As a class, create an ongoing list of interesting facts about each planet as the lessons progress.

Create Your Own Space Song

- Divide into cooperative groups and compose a song with given parameters about the assigned planet.
  - ♬ Parameters for composition should consider length (how many measures, time signature, rhythms to use and how they match the lyrics), pitches available, dynamic levels, instrumentation, and form.
- As a closing activity, students will perform their planet songs to the class. After each performance, encourage students to share one interesting fact about the planet they sang about.

Extra Activities

- The Planets Rhythm Play Along Video
- The Planets CUPs Play Along
- The Planets Body Percussion

EARTH

Earth is the third planet from the sun and is the only known planet to sustain life. It is a terrestrial planet with a diverse range of environments, including land masses, oceans, and atmosphere. Earth has a diverse climate, with temperatures ranging from below freezing at the poles to over 100F (37.8C) in some tropical regions.

The Earth's diameter is approximately 12,742 kilometers (7,918 miles), and it has a circumference of about 40,075 kilometers (24,901 miles) at the equator. It is about 93 million miles (149.6 million kilometers) away from the sun.

Earth is home to an incredible variety of life, including millions of different species of plants, animals, and microorganism. Humans are the most recent addition to the planet's diverse array of life forms. Overall, Earth is a unique and remarkable planet, with a rich natural history and a complex system that sustains life.

Complete using full sentence answers:

Explain why Earth is sustainable for life.

How far away from Earth is the Sun?

Explain the differing temperatures on Earth.

What do you think a 'microorganism' is?

What was the most interesting fact you learnt about Earth?

JUPITER

jupiter is the fifth planet from the sun and the largest planet in our solar system. It is a gas giant planet, meaning it is composed primarily of hydrogen and helium, with a relatively small rocky core.

Jupiter has a diameter of about 139,822 kilometers (86,881 miles) and is about 778 million kilometers (484 million miles) away from the sun. It has a mass of about 1.898 x 10^27 kilograms, making it more bigger than all the other planets in our solar system combined.

Jupiter has a very active atmosphere, with winds that reach up to 620 miles (1,000 kilometers) per hour. It has a frequent storms, including the Great Red Spot, a giant storm system that has raged for at least 400 years.

Jupiter has 79 known moons. The planet was known to the ancient civilization and has been studies by astronomers for centuries. In recent decades, a number of spacecraft have flown by and orbited Jupiter, allowing us to learn more about this massive and fascinating planet and its moons.

Complete using full sentence answers:

How big is Jupiter?

How many moons does Jupiter have?

What is a ‘gas giant’?

What is the ‘Great Red Spot’

How long have people known about Jupiter?

MARS

Mars is the fourth planet from the sun and is the second closest planet to Earth. It is often referred to as the "Red Planet" due to its reddish appearance, which is caused by rust on its surface. Mars has a thin atmosphere consisting of carbon dioxide, nitrogen and argon. Mars has the largest volcano (Olympus Mons) and the deepest canyon (Valles Marineris) in the solar system. It also has two small moons, Phobos and Deimos, which are thought to be captured asteroids.

Mars has a day night cycle that is similar to Earth's, with a 24.6-hour day. Its surface is cold and dry, with average temperatures ranging from -80F (-62C) at the poles to 70F (20C) near the equator.

Exploration of Mars has been a focus of both robotic missions and plans for human exploration. Recently, several missions have been sent to Mars to search for signs of past or present life and to gather data on the planet's geology, climate, and atmosphere. Mars is a fascinating planet with many mysteries yet to be explored.

Complete using full sentence answers:

Describe where Mars Lies in the Solar System.

How many moons does Mars have?

Why does Mars appear red?

Why has there been an interest in scientific exploration of Mars?

Write down three interesting facts about Mars.

MERCURY

Mercury is the smallest and closest planet to the sun in our solar system. It is a terrestrial planet, meaning it has a solid surface. Mercury has a diameter of about 4,880 kilometers (3,032 miles) and is about 77 million kilometers (48 million miles) away from the sun at its closes approach.

Mercury has a heavily cratered surface with evidence of pas volcanic activity. Despite its proximity to the sun, Mercury is one of the coldest planets in our solar system, with surface temperatures that can drop to -290F (180C) at night.

Mercury has no moons and no significant atmosphere to retain heat, so its surface is heavily bombarded by meteoroids and cosmic rays. This has left the surface with numerous craters, cliffs, and valleys, providing a glimpse into the early history of the inner solar system.

Complete using full sentence answers:

Describe Mercury's size.

How many moons does Mercury have?

Explain why Mercury is so cold.

Where is Mercury located within the Solar System?

Why is Mercury heavily cratered?

NEPTUNE

Neptune is the eighth and farthest planet from the sun in our solar system. It is a gas giant planet, meaning it is composed primarily of hydrogen, helium, and methane, and has a relatively small rocky core.

Neptune has a diameter of about 49, 244 kilometers (30,779 miles) and is about 4.5 billion kilometers (2.8 billion miles) away from the sun. It is the third largest planet in our planet in our solar system, after Jupiter and Saturn.

Neptune has a very active atmosphere, with high-speed winds and frequent storms, including the Great Dark Spot. It has 13 known moons, including Triton, which is the largest and one of the coldest in our solar system.

Overall, Neptune is a fascinating planet, with a rich and complex atmosphere. Its distance from the sun makes it difficult to study, but ongoing and future missions will continue to reveal new information about this distant world.

Complete using full sentence answers:

Detail Neptune's position within the Solar System.

Which two planet are larger than Neptune?

What is the Great Dark Spot?

Why is it difficult for scientist to study Neptune?

Why is Neptune not a suitable place for humans to live?

SATURN

Saturn is the sixth planet from the sun and the second largest planet in our solar system. It is a gas giant planet, meaning it is composed primarily of hydrogen and helium, with a relatively small rocky core. Saturn has a diameter of about 116, 460 kilometers (72,460 miles) and is about 1.43 billion kilometers (887 million miles) away from the sun.

Saturn has a very active atmosphere, with winds that can reach up to 1,500 kilometers (930 miles) per hour and frequent storms, including the Great White Spot, a giant storm that occurs about every 30 years. Saturn has 82 known moons and a system of rings, which are made up of ice and rock particles. Its rings and moons make Saturn one of the most visually stunning objects in our solar system and provide important clues about the formation and evolution of gas giant planets and their satellite systems.

Complete using full sentence answers:

What is meant by a 'gas giant'?

How many moons does Saturn have?

Detail Saturn's ring system.

Why is Saturn visually stunning?

Explain Saturn's atmosphere.

URANUS

Uranus is the seventh planet from the sun and the third largest planet in our solar system. It is a gas giant planet, meaning it is composed primarily of hydrogen and helium, with a relatively small rocky core. Uranus has a diameter of about 50,724 kilometers (31,189 miles) and is about 1.7billion kilometers (1.1 billion miles) away from the sun.

Uranus has a unique and fascinating atmosphere, which is composed primarily of hydrogen and helium, with a small amounts of methane. This methane gives Uranus its distinctive blue-green color, and its atmosphere also contains a number of cloud systems and storms. Uranus has a 27 known moons. Uranus has a ring system, which was discovered in 1977.

Its atmosphere and moons make it one of the most important objects in our solar system for understanding the evolution of gas giant planets and the potential for life elsewhere in the galaxy.

Complete using full sentence answers:

What is meant by a 'gas giant'?

How many moons does Uranus have?

Explain Uranus' color and appearance.

Detail Uranus' position within the Solar System.

Why is Uranus not a suitable place for humans to live?

VENUS

Venus is the second planet from the sun and is closest planet to Earth. It is similar in size and structure to Earth. Venus has a diameter of about 12,104 kilometers (7,521 miles) and is about 108 million kilometers (67 million miles) away from the sun.

Venus has a thick, toxic atmosphere composed of carbon dioxide, with clouds of sulfuric acid that constantly shroud its surface. It is the hottest planet in our solar system, with surface temperatures reaching up to 864F (462C).

Venus has a slow rotation and no moons, but it does have a number of large and unique features, including vast volcanic plains and towering mountains.

Overall, Venus is a fascinating and unique planet. It is one of the most hospitable planets in our solar system and provides a glimpse into the potential for other, similar rocky planets elsewhere in the galaxy.

Complete using full sentence answers:

How are Venus and Earth similar?

How many moons does Venus have?

Explain Venus' terrain.

Why do you think Venus is the hottest planet?

Why is Venus not a suitable place for humans to live?

Name: _____ Date: _____

The Solar System

Look at the pictures and circle the correct words

 The Sun / The Satellite	 The Comet / The Moon
 Venus / Neptune	 Mars / Mercury
 Jupiter / Saturn	 Mercury / Venus
 Earth / Uranus	 Earth / Uranus
 Uranus / Mercury	 Saturn / Venus