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The Water Princess Land and Water Instructional Guide

Developed for Teaching Channel by award-winning science teacher, Kathy Renfrew. Kathy has been deeply involved with the development and implementation of NGSS.

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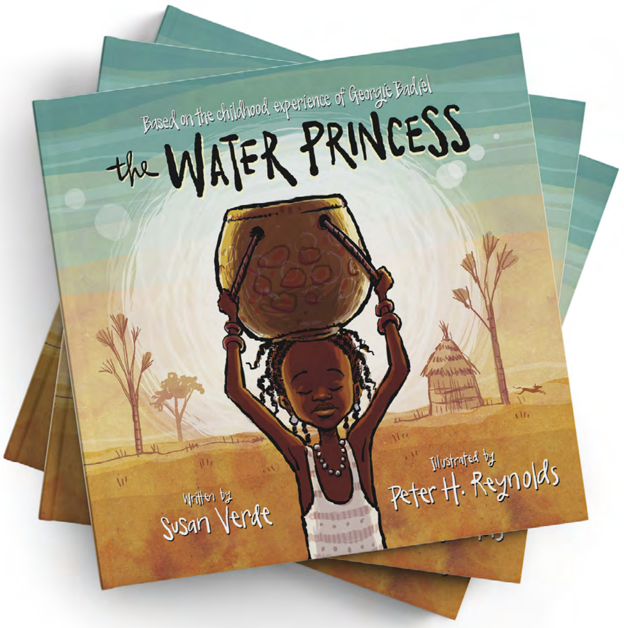
Integrated Science, Social Studies and English Language Arts Unit:

How Can There be **So Much Water** and **So Little to Drink** on Earth?



What can we learn from Susan Verde's ***The Water Princess*** to help us understand the relationships and connections between landforms, oceans and clean drinking water?

Driving Questions	• What can a map tell us about land and water on Earth? How do maps help us find landforms and bodies of water? • How is a map similar and different from the places it represents? How are the landforms and bodies of water represented on a map? What patterns can we see? • How can there be so much water but so little to drink? What's the availability of freshwater and how to conserve it?	Focus Disciplines: **Science & Geography**	Time Frame: **Estimated number of sessions: 15** Intentionally organized by topics. Some topics will need multiple consecutive sessions. **Estimated time per day: 45-60 minutes per day**
Overview	This unit provides students with the knowledge that the Earth can be represented in many different models, the skills to identify landforms, global bodies of water, and the availability of freshwater on Earth necessary for survival. Figuring out key concepts about land and water can help us better understand and conserve this very limited resource. In the process, we will learn about the challenges the "water princess" faced in the story, and begin to think about what we (2nd graders) could do to conserve this valuable resource.		

Enduring Understanding

The students will understand:

- The relationship between humans, the land and water.
- Acknowledgment and identification of large land masses called continents.
- Recognition of the great expanses of water on our planet in many different forms including oceans, seas, lakes, rivers, etc.
- The critical status of water for survival, and that clean, fresh water is not always bountiful for everyone in our global, national, and local communities.
- The necessity of strong conservation efforts by humans.

Standards

Science

Learners will:

- Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. K-2-ETS1-1 *(The Water Princess)*
- Develop a model to represent the shapes and kinds of land and bodies of water in an area. 2-ESS2-2
- Obtain information to identify where water is found on Earth and that it can be solid or liquid. 2-ESS2-3

Social Studies

Learners will:

- On a map of the world and on a globe, locate all the continents and some major physical characteristics on each continent (e.g., lakes, seas, bays, rivers and tributaries, mountains and mountain ranges, and peninsulas, deserts, plains). D2.Geo.2.K-2.
- On a map of the world and on a globe, locate the oceans of the world, and explain the importance of oceans and how they make the world habitable. D2.Geo.2.K-2.

Standards (cont.)

Reading

Learners will:

- Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in text. (RL 2.1)
- Determine the meaning of words and phrases in a text relevant to the unit like landforms and bodies of water. (RI)
- Identify the main purpose of a text, including what the author wants to answer, explain, or describe. (RI)

Writing

Learners will:

- Construct explanations that supply evidence from the text to support the claim they are making, use linking words (e.g., because, and, also) to connect claims, evidence and reasoning. (W)
- Recall information from experiences or gather information from provided sources to answer a question. (W)

Speaking and Listening

Learners will:

- Ask and answer questions about what a speaker says in a scientist meeting to clarify comprehension, gather additional information, or deepen understanding of a topic or issue. (SL)
- Explain results from a science investigation, with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences and using appropriate vocabulary. (SL)

Anchor

- Introduce the driving question to students using a KLEWS chart that is hanging on the wall or whiteboard.

> "We are going to be trying to figure out the answer to those questions by exploring maps, books and investigating some of our own questions. We will begin using what I like to call a KLEWS chart. Can anyone tell me why they think it is called that?"

EXAMPLE:

KLEWS CHART

Driving Question:

How can learning about landforms, bodies of water and maps help us better understand *The Water Princess*, and where we can find clean, fresh water on Earth?

K	L	E	W	S
We Think We **Know?**	We **Learned** (Claim)	**Evidence** We Found	**Wonders** We Have	**Science** Words and Principles

- **Ask students to make a KLEWS chart in their science notebook replicating the one you are displaying or provide them with a template that they can tape or paste into their science notebooks**

  - When students have the KLEWS chart in their science notebooks, ask them to record what they know (or think they know) and any wonders they have about landforms and bodies of water using words and/or pictures.
  - Have students get into Partner Place mode and engage in a "Turn and Learn" with the partner seated the closest to them at their desk or table or on the rug.
  - Whole class shares what we think we know and wonders with the teacher recording on the KLEWS chart under the K and the W on the class chart.

If the word "desert" doesn't emerge from students, teachers should include it under what you think you know about landforms and bodies of water.

The teacher should also prepare a *The Water Princess* Notice and Wonder on chart paper.

Setting the Stage:

"Some of the things that we think we know are there are oceans on Earth, maps can show us where people live, we swim in lakes and deserts are very dry. I wonder what people who live in deserts drink?"

"Have you ever been thirsty? Tell me about it. What did you do to become not so thirsty anymore?" Record responses so that students can later compare their own experience with Princess Gie.

"You got a juice box from the refrigerator? You were at the beach making a sand castle and you went back to your family's blanket. You went to the faucet and turned on the water. I wonder if everyone is able to do the things we just listed. What do you think?"

After students share their ideas...

"I am going to read you a story about a little girl with a *very big problem*. She's often thirsty, and cannot always have clean water to drink whenever she wants a drink."

Interactive Read Aloud of *The Water Princess*

"First, I am going to read the story aloud slowly, and I want you to listen and enjoy the story. But as you listen, be sure you are doing some **noticing and wondering**. I want you to write down at least 1 notice and 1 wonder in your science notebook. I am sure you will have lots of noticing and wonderings and you can write them all down if you want, but I am looking for one from each of you. After the story, I will write them down on our class KLEWS chart."

"I notice she is carrying a basket or something on her head. I wonder what she is going to put in the basket?" Use a Notice and Wonder note catcher in your notebook.

The Teacher Reads the Book Aloud.

"Let's hear your Notice and Wonders." Students read aloud their initial observations captured on the Notice and Wonder note catcher.

The teacher asks, "So, what do we think we know about Gie?" "So, what did we learn from reading about Gie, 'The Water Princess' that can help us figure out about landforms and lack of fresh, clean water on Earth?"

The teacher records student thinking on the class KLEWS chart.

The teacher tells students that sometimes they will be working individually or on their own and sometimes they will work in partners or groups. **"When we are working on our own we have a special name for that 'The Alone Zone'."** Ask students to repeat your exaggerated deep voice "The Alone Zone". Tell students that they will be silently working in the "The Alone Zone" for the beginning of this next activity.

"I now want you to really focus on our wonders, your questions. I want you to look at your list of wonders from your individual note catcher and our class KLEWs. What questions do you have about Gie, her home, her daily life? I want you to work silently for 5 minutes and write your most important questions on index cards. I want you to write only one question per index card. I know you all have at least one question." (I chose index cards because they are larger for 2nd grade/bigger than sticky notes for 2nd grade writers) **(K-2-ETS1) (RL2.1)**

Potential Student Wonders:

Why is everything brown?

What's on her head?

I have never heard of a karite tree.
Where does it grow? Is it really purple?

Teacher records Driving Question on the top of the KLEWs chart if it hasn't been recorded previously.

"Now we are going to read the book again and see what we can figure out from the story still with a science/social studies focus."

Second Read Aloud

At the end of the read aloud students can make predictions in their science notebook using the following sentence frame:

I think Princess Gie lives ____ because ____. (formative assessment)

Students will most likely come up with at least 3-4 questions. Once all questions have been recorded we begin engaging in an adapted *Question Formulation Technique* (QFT). **The teacher tells students they are coming out of "The Alone Zone" and moving into "Partner Place" where they will work with another student.** Remind students that in a "Partner Place" we do many activities, "Think-Pair-Share", "Turn and Learn", and other things like partner reading and we need to remember our agreements for working with partners. (to be added) (K-2-ETS1) (RL2.1)

Teacher may provide each partnerships with a set of directions they can use to assist in the sorting activity (to be added). Teacher is moving around classroom to assist whenever it is necessary.

PARTNER PLACE

1) Students work in pairs and share their questions with a partner.
2) Student pairs go through the cards and remove cards that are either not questions or not related in any way to the story or are not science social studies questions. (Some statements and/or irrelevant questions might have been written. Example: "There are stars in the sky. Why does she dance?")
3) The partners then work together to identify questions as science or social studies questions and questions for the story (some may be both).
4) Once students have identified the cards with questions related to the story or science/social studies questions and/or story, teachers intervenes and ask students to find questions that can be answered yes or no. Teacher shares that yes or no questions these are called closed questions because we don't have to investigate to figure them out and that we are going to put them aside for now. We are going to be working with our other questions which we call our **open** questions.

5) **The teacher says "Let's look at our open questions."**

6) Now that we have identified our open science and social studies questions and questions, let's get them up on the classroom KLEWS chart, under the W column. The teacher shares that these are our most important questions that we want to answer. The teacher tells children that we may add more "wonders" as we go through this unit.

7) The teacher asks "How are we going to find out the answers to our **open** questions?"

   a) Investigate
   b) Research
   c) Observe

8) Teacher asks: "What questions do you still have that we didn't get written down? Are there any of the 'closed' questions that we could make into open questions?" Record on class KLEWS chart. Teacher shares with students that all of their questions will help us figure out more about Princess Gie having to walk a long way to get water. We will explore maps and globes to figure out **how landforms and oceans contribute** to her situation? (some form of this should be one of student questions)

Teacher note: In order for students to read you will need to purchase enough books for partners to share or you might purchase an online version such as one obtained from kindle. This might be a "Donors Choose" project so every child has their own copy for the entirety of the unit.

"We are going to read it a third time, this time we will be working on becoming better readers. I will read it aloud but you will be reading along."

The third read might take place during literacy time when it will focus more on the literacy standards. Vocabulary to consider discussing: mamam, melody, karite tree, shea nuts, maintenant, cramp. Discuss the pages at the end of the story, dedication page, copyright, etc.

Navigation Through the Learning Experiences

Things a Teacher Might Say or Do	Things a Student Might Say or Do

POLITICAL WORLD MAP WITH FOCUS ON CONTINENTS

D2.Geo.2.K-2

"Let's look at this world map and see if we can find where 'The Water Princess' lived."

- **"What do you notice looking at this political world map?"**
- **"Does anyone know the name of the large pieces of land?"**
- **"What do you know about the water?"**
- **"Who notices any patterns looking at the map?"**
- **"What kinds of patterns do you see?"**

After students respond/if students do not share, the teacher will share the words "continents" and "oceans" with students by putting it up on the word wall. Have students write the word down.

"I want to tell you this map is called a political map. That means it is a type of map that represents political divisions, or human-created boundaries, of the world, continents and major geographic regions. Features found on a political map may include country borders, roads, population centers and landform boundaries."

POLITICAL WORLD MAP WITH FOCUS ON CONTINENTS

D2.Geo.2.K-2

Each student or small group of students will be given a world map to observe, examine closely and interpret.

Students should respond by saying something like...

- **"I see water (oceans)."**
- **"I see different kinds of land."**
- **"I see a pattern of blue. All the water is blue."**
- **"I see lots of green and brown land."**

Students will watch a video about the continents of the world.

Students might respond that all the bodies of water are blue. I see all the lines between countries are black

Students can use Google Maps to view the continent where Princess Gie lived and notice how far away it is from their home.

Things a Teacher Might Say or Do	Things a Student Might Say or Do
After watching the continent video, suggest we take a closer look at the contents and the landforms on the continents. We will do this using Google Earth. Students are introduced to Google Earth as way to look at the Earth. • **"How does this model of Earth compare with our classroom globe?"** • **"How does it compare to the world maps we have looked at earlier?"** • **"Show students where they are and then where Princess Gie lived."**	Students engage in discourse about any noticings or wonderings they might have about the continents as well as respond to prompts about Princess Gie.
NOW ASK STUDENTS TO GET READY FOR A SCIENCE TALK. Knowing how to speak and listen in a group is important in all disciplines. It is a critical part of quality science instruction. **"Talk allows the students the chance to share their thinking, make claims, support their claims with evidence and explain their findings. Students learn from one another when they are engaged in science talk. Science talk provides them the opportunity to ask questions, build each other's ideas or change their thinking completely. When students are engaged in meaning science talk, I like to say they are in the process of 'multiple draft thinking'. Talk is fluid. It allows the ability to be flexible, bend and twist our ideas until they make sense."** (Kathy Renfrew, The Science Lady, Middleweb)	

Things a Teacher Might Say or Do	Things a Student Might Say or Do

What does it mean to prepare for science talk with the students?

Students go to their places in the circle. Review the agreements you have set up for science talk as they may be different from the norms you use in the other disciplines.

For example, during a science talk students don't need to raise their hands because they aren't talking to you but to their classmates.

If this is the first time you are having a science talk you will need to spend some time figuring out your agreements.

> **Some possible agreements to get started:**
>
> - We sit in a circle.
> - We speak and listen using a voice everyone can hear, but not yelling.
> - We share questions and comments.
> - Everyone shares a comment.
>
> Or
>
> - We want everyone to have time to think and then take turns sharing their thinking.
> - We discuss ideas, not people.
> - We look at the speaker, listen carefully and ask questions to help us understand everyone's ideas.
> - We are open to changing our minds.
> - We always look for evidence and ask others for evidence.
> - We use and build on each other's ideas.

Things a Teacher Might Say or Do	Things a Student Might Say or Do
Questions the teacher uses to get the science talk started. The goal is for the students to be talking about ideas with each other. Teachers don't need to ask all these questions directly but try to encourage students to elaborate and they might begin to discuss some of these questions. Teachers should be capturing ideas and questions on sticky notes that can be added to the KLEWS chart. One reason for using sticky notes moving forward is so they might be moved from easily. One tool that might be helpful is "a talking stick" that can be passed from one student to another if they are early in their learning to talk with each other. D2.Geo.2.K-2. • **"What do we call the landmasses spread around the world?"** • **"What were the names of the continents we saw on the map and globe?"** • **"Where do you think Princess Gie lives?"** • **"What did you see that gave you a bit more information about the place she lived?"** • **"What was the land like where Princess Gie lived? What patterns are evident in the land near Princess Gie?"** • **"What landforms are near and around where you live."** • **"Are the landforms part of a pattern?"** As the science talk is happening the teacher can ask students what needs to be added to the KLEWS chart and then record any agreed upon responses on the KLEWS chart.	

Things a Teacher Might Say or Do	Things a Student Might Say or Do
After the science/social studies talk, students will learn the Silly Continent Song.	Students sing the Silly Continent Song.
Students add the names of the continents to the map using pre-printed Avery labels.	Students label a blank map of the continents using pre-printed Avery labels.
Write the words **"Burkina Faso"** on the board. D2.Geo.2.K-2	Students write **"Burkina Faso"** in their notebooks.
Students add Burkina Faso label to the map.	They then place the label Burkina Faso on their continent map in Africa.
	Students engage in matching pictures with names of continents online game or can be physical game or worksheet.

Before the end of the day...

- Let students know they will be using many different models of the Earth for the rest of the learning experience.

Close out the day with the following:

- Let's look at the KLEWS chart.
- In our scientists notebook please, write down one thing we learned today that will help us better understand why Princess Gie has to walk so far to get water.

"Are there any new words or science ideas we need to add to either KLEWS chart and the Word Wall?"

Things a Teacher Might Say or Do	Things a Student Might Say or Do

PHYSICAL MAPS WITH A FOCUS ON LANDFORMS

D2.Geo.2.K-2

Part 1

"Today we will be looking at another world map, but this one is different than the one we explored yesterday. This is another model of the Earth, called a 'physical map.' This video is from one of the Smithsonian Institute for Science Education's units. The unit is called 'What Can Maps Tell Us about Land and Water on Earth?'"

*Keep in mind — there are many great resources in this Smithsonian Unit — we are just scratching the surface with "Ada Asks".

Turn and Learn - Students will share something they liked in Ada Asks and something they learned with their elbow partners.

Navigate - Yesterday we looked at a political map which shows state and national boundaries, capitals and major cities. Today we are looking at physical maps which illustrate physical features such as oceans, mountains, deserts, rivers and lakes.

Part 2

Your small groups will look carefully at this new map and Notice and Wonder. I want you to work together and record your notices on a sticky note. Write one notice per sticky note. If you have any wonders, again record them one per sticky note. We will share them and add any we agree on to the KLEWS chart.

PHYSICAL MAPS WITH A FOCUS ON LANDFORMS

Students will watch Ada Asks Introduction (1:19)

Part 2

Students look at the physical maps, noticing and wondering about landforms, etc. **They record their Notice and Wonders, one per sticky note, and keep them in the Note Catcher in their science notebooks.**

Things a Teacher Might Say or Do	Things a Student Might Say or Do
Add any class agreed upon Notice and Wonders to the KLEWS chart.	Students share Notice and Wonders
Landforms 2-ESS2-2 At the end of the lesson we want students to know that most maps usually include the following: • Man-made features (a road, a bridge, a house, building, etc) • Natural landforms (a mountain, water, volcano, etc.) D2.Geo.2.K-2 Elicit student ideas of similarities. **"So what do you see that is the same between the political map you looked at yesterday and the map from today?"** Record the similarities on the board so students can see them on the whiteboard as the lesson continues. **"I will start the list:"** Possible questions: • **"Can you find the map key on the map your group looked at today? Where is it located?"** • **"What were some of the man-made features you saw, especially on the political map?"** • **"What physical features did your group discover when you did your Notice and Wonder?"** • **"Tomorrow we will learn more about these models of the Earth as we watch some videos. Make some comparisons and have a science/social studies talk." D2.Geo.2.K-2.**	Students watch the video Landforms to learn about the physical features of the Earth and to think about **Princess Gie and on what landform she lives**.

Things a Teacher Might Say or Do	Things a Student Might Say or Do

MAPS AND GLOBES (Teacher)

D2.Geo.2.K-2. 2-ESS2-2

"We learned about landforms but now we are going to talk about maps and globes. We are going to watch a couple of videos about maps and globes to learn a little bit more about the different models (representation of places and features of the Earth. We will start with some of the tools we use to help us better understand maps. Two of those tools are the compass rose and map keys."

Maps and Globes 1   Maps and Globes 2

Students will compare maps and globes and identify similarities and differences, teacher will add a completed Venn Diagram to the KLEWS chart under the "S" because we are not asking them for evidence.

Close out the day with a brief science talk to update our KLEWS chart.

- **"Let's look at the KLEWS chart. Let's look at the L. The L, which represents 'Learned', can also stand for 'claim'. Can we make any claims yet?"**
- **"If we add something to the L, we need to have evidence, which would go under the E. For example: We learned that Burkina Faso is a desert area. One piece of evidence is the color brown on the map."**
- **"Have we answered any of our questions? Do we have any new questions?"**

"Final Activity in your science notebooks, write down one thing you figured out today that will help us better understand why Princess Gie has to walk so far to get water."

MAPS AND GLOBES (Student)

Students watch videos about Maps and Globes to learn about more about the different models (representations) of Earth.

Students watch the videos and begin to see that maps can define and set boundaries for spaces and that the Earth is represented in many different ways.

Students complete a Venn Diagram comparing maps and globes and listing the similarities and differences between maps and globes.

Students watch the video Landforms to learn about the physical features of the Earth and to think about Princess Gie and on what landform she lives.

Final Activity of the Learning Experience

Students answer the questions:

- **"What is one thing you figured out about Princess Gie's situation after learning about the different landforms?"**
- **"What did you figure out today and what is the evidence?"**

Students complete an activity that compares the desert to the landform near their home.

Things a Teacher Might Say or Do	Things a Student Might Say or Do

HOW MUCH WATER IS ON EARTH? PLASTIC GLOBE TOSS GAME

D2.Geo.3.K-2. 2-ESS2-2

"Yesterday we were looking at large landmasses. Today our focus is on bodies of water." Now we are going to play a game to help us better understand how much water there is in the world. It's called the 'Plastic Globe Toss Game'. We are going to use a plastic globe, dots and a tally sheet for Globe Toss."

Use simple T-chart with "Land" on one side and "Water"on the other. Provide each student two colored dots each that they place on the charts indicating where their fingers landed.

Teacher and a student model tossing the globe as and saying **"I will toss the globe to each of you and you will tell if your pointer (index) fingers have landed on land or water."**

HOW MUCH WATER IS ON EARTH? PLASTIC GLOBE TOSS GAME

Students catch the globe, **gently toss** it back to the teacher and walk to the tally chart where they place they place their two dots under Water or Land.

Students will begin to see that water is a huge part of our world.

Students engage in a "Turn and Learn" to discuss **"So what did we learn about bodies of water that helps us figure out why Princess Gie has so little water to drink?"**.

Things a Teacher Might Say or Do	Things a Student Might Say or Do
Teacher throws the plastic globe to each student and the student notices where the index finger is on both of their hands.	
When everyone has a turn, ask the students to look at the tally chart and in their science notebook write down one thing they noticed about the completed tally chart.	Students add their thinking to the KLEWS chart Students record one thing they notice about the data in their science notebooks.
At the end the teacher will share with students the number of times their hands touched water out of the total number of tosses. For example if there were 24 students, there are 48 opportunities to touch water.	Students complete the sentence frame (using the example) **"My fingers touched water ______ out of 2 possibilities to touch water. The class touched water ______ out of 48 possibilities to touch the water."**
After students look at the data, the teacher prompts **"What questions does this bring up when we think back to Princess Gie and *The Water Princess*?"** **"Do we know more or do we still need to figure some things out that will better help us to understand Princess Gie's problems?"** Students jot down their own thinking in their science notebooks and then engage in a "Turn and Learn" to discuss this prompt.	

Things a Teacher Might Say or Do	Things a Student Might Say or Do

LOOKING AT BODIES OF WATER ON MAPS AND GLOBES

D2.Geo.2.K-2. 2-ESS2-2

"Yesterday we were looking at how much water is on Earth. Today we will keep our focus on bodies of water. Let's keep expanding our map knowledge today as we look more closely at water on Earth. Make a list of them in your science notebooks."

Teacher provides world maps for groups of students to **explore looking and noticing**, focusing on bodies of water. Teacher can provide this map digitally and students can use tablets or Chromebooks to zoom in and out.

"Next we are going to watch a video about bodies of water. Open your science notebooks. As you watch please check your list and add any new ones you hear."

?

Students will be given a map and students will be given a world map where they will add the names of oceans and another worksheet where they will identify other bodies of water.

Students engage in a "Turn and Learn" to discuss **"So what did we learn about bodies of water that helps us figure out why Princess Gie has so little water to drink?"**

KLEWS CHART

"Let's take a look at our KLEWS chart. Do we have any ideas, questions or new words that we need to add?"

LOOKING AT BODIES OF WATER ON MAPS AND GLOBES

Students look at the world map again but this time looking for bodies of water and recording the names of the bodies of water in a list in their science notebook

Students watch a video about the different bodies of water in the world. They will open their science notebooks to the list they made. As they watch the video they will check off the ones they had listed. They will write new ones they heard in a different color.

Students need to add the names of the bodies of water to this map in the correct spot. The specific names are provided for the student.

Students use their science notebooks as they do in a "Turn and Learn" with an elbow partner.

Students then share out to the whole class.

Things a Teacher Might Say or Do	Things a Student Might Say or Do
FINDING MORE EVIDENCE OF THE AMOUNT OF WATER ON EARTH	**FINDING MORE EVIDENCE OF THE AMOUNT OF WATER ON EARTH**
2-ESS2-2 Teacher gives students a world map with squares overlaid for them to color, cut, sort and paste as additional evidence the world is mostly water. Students will paste the squares on the chart. Students can either make this T-chart in their science notebooks or they can use this chart. **"What can we agree on that we can add to our KLEWS chart?"**	Students color, cut, sort and paste world map as additional evidence that the world is mostly water. They paste the squares into the appropriate column in their notebooks or on the chart on this worksheet.
Teachers should elicit the idea that the world is made up of mostly water. This should cause some cognitive dissonance for students. Why, if the world is mostly water doesn't Princess Gie have plenty of clean water to drink. **Teacher's Guide: Claims and Evidence** **"Now we are going to make a claim about what we know so far. A claim is just the answer to our question. What's our question?"** **"So you will be given a sentence frame which you will complete. A claim doesn't stand alone without evidence. We need to add the words claim and evidence to our S column on the KLEWS chart. So the question I still have is 'How can Princess Gie have so little water when there is so much water on Earth?'"**	Students engage in whole class discussion to come to consensus about what they as a class now know that will help them explain why Princess Gie has to carry water and it's not even clean. Students respond **"We still need to figure some things out that will better help us to understand Princess Gie's problems?"** Students can **make a claim** based on the data collected from the Globe Toss which was recorded on the KLEWS chart. Students **make a claim** by completing the following sentence frame: **I am still not sure why Princess Gie doesn't have enough water to drink because I think there is more ___________ than ___________ in the world. My evidence is because our hands landed on ___________ , ____ out of ____ times.**

Things a Teacher Might Say or Do	Things a Student Might Say or Do
LEARNING MORE ABOUT WATER ON EARTH	**LEARNING MORE ABOUT WATER ON EARTH**
"We will dig into that question tomorrow."	Students know the Earth is mostly water.
2-ESS2-2	
Teacher begins with the KLEWS chart. **"What do we know or think we know about water on Earth? What are some different sources of water on Earth?"**	Students may respond "oceans, rivers, lakes…".
Teacher does one of the following two things: Shows a video about oceans, lakes and rivers and/or reads the science picture book *Water Sources*.	Students gather additional information from watching the video and/or listening to the book being read aloud.
Students will complete a Water Words Sort worksheet.	Students complete a Water Words Sort worksheet.
Science Talk Ask students to prepare for "science talk", making sure to bring their notebooks. Remind students of our agreements (see above). The question for today is **"Now that we know more about the types of water on Earth and where they are located, what do we think is happening with Princess Gie? Before we get started talking I want you to take out your science notebook and use words and pictures to try to explain why Princess Gie doesn't have water at home and has to walk a long way to get it and why the water they get isn't clean."** Take about 5 minutes to get your ideas down in your notebook and then use your notebook to help you share your ideas. After 5 minutes you might ask the students to share with an elbow partner before talking in the whole group.	

Things a Teacher Might Say or Do	Things a Student Might Say or Do
LANDFORMS AND PRINCESS GIE	**LANDFORMS AND PRINCESS GIE**
"What words should we add to our Word Wall?" The teacher reads aloud using the book itself or the virtual version of the book showing the photographs of the different landforms. Teacher asks students to listen to the read aloud. **Closing** - Teacher shares that tomorrow we will find out more about Princess Gie, where she lived and her struggle for clean water.	Students connect their new learning about landforms to how landforms might influence the quality of water that Princess Gie can access by. https://www.getepic.com/app/read/45410 Students will notice and wonder in their science notebooks as the teacher reads aloud and during the follow up video. **Students watch a video writing notes in a science notebook gathering more information about each type of landform.** **Landforms 2** Students do a "Turn and Learn" with their elbow partner of what they heard and saw from the read aloud and video.

Things a Teacher Might Say or Do	Things a Student Might Say or Do
BURKINA FASO AND THE REAL WATER PRINCESS	**BURKINA FASO AND THE REAL WATER PRINCESS**
2-ESS2-2 The teacher shows slides of images from rural Burkina Faso. Teacher asks students why Princess Gie had to walk so far to find water. Very dry land. Teacher shares the story of Georgie Badiel, the real Water Princess and her foundation and lets the students know they will learn even more about Georgie at the end of the learning experience. Teacher asks students to complete the sentence frame based on what they just learned about *The Water Princess.* **"Thinking about landforms, what type of landform does Gie live on?"** **"In your science notebook respond to the prompt by completing the sentence frame I think _____________ because _____________. What evidence do you have to back up your thinking?"**	After viewing the slides and hearing about the real Water Princess, students think about and draw (make a model) of the landforms in Burkina Faso in their science notebook.
Teacher calls for a science circle and reminds students of their agreements, then begins the science talk by prompting... **"What do we know about Burkina Faso that can better understand why Princess Gie had to walk so far for water Remember when we share our thinking we back it up with evidence. Saying 'I think _____________ because _____________' might help you remember the evidence".** The teacher is also adding information to the KLEWS chart when ideas are shared.	Students bring their science notebook to the science circle so they can use it during the science talk. Students engage in a science talk about **the land of Burkina Faso and how the land played a part in Princess Gie not having clean water nearby**.

Things a Teacher Might Say or Do	Things a Student Might Say or Do

MORE ABOUT LANDFORMS AND MAKING CONNECTIONS TO LOCAL AREAS

2-ESS2-2

Prep:

- Insert photos into the **Phenomenon** spot on the graphic organizer.
- Print one out for each student or create a template in Google docs and students complete in the Google classroom.

Part 1

Teacher creates Google slideshow review of different landforms including water bodies from your local area. I got one started in MA but I also made sure to include a slide of a desert.

Suggestion: Mojave Desert California

- Boston Harbor
- Martha's Vineyard

Part 2

The teacher facilitates the completion of the graphic organizer with the whole group.

"Each of you will get a piece of paper that looks like this…" (see example on the page that follows)

MORE ABOUT LANDFORMS AND MAKING CONNECTIONS TO LOCAL AREAS

Part 1

Students are given a list of the landforms that are in the slideshow and they use these annotations as the slide show is shown:

- Smiley face - I have visited this type of landform
- Check mark - I have seen pictures of this landform
- W - I am wondering about this landform
- ?? - I am confused. I don't really understand much about this landform

Part 2

Whole group works together to complete an example of a completed graphic organizer.

Things a Teacher Might Say or Do	Things a Student Might Say or Do

EXAMPLE:

Name: ______________________

Patterns of Land and Water

PHENOMENON

MAP

KEY

"The phenomenon will be filled in for you. Your job is to complete the map so that it includes the phenomenon as well in a simple map that makes sense for that landform. For example, when I do our class example I won't put skyscrapers (tall buildings) on the side of a mountain or I won't put a mountain range (a group of mountains) next to the post office."

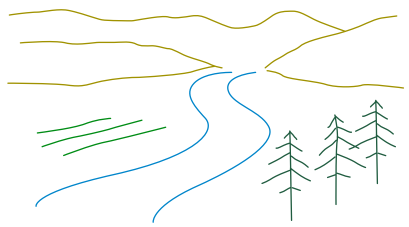
"Let's do one as a class."

Teacher walks through this completed or begins a new one.

Patterns of Land and Water

PHENOMENON

MAP



KEY

Mountains

River

Field

Forest

Things a Teacher Might Say or Do	Things a Student Might Say or Do
The map key needs to include symbols for the phenomenon and other landforms you might choose to include. The class example includes mountains, rivers and lakes.	
When the whole class lesson is completed students will each receive a graphic organizer with a landform phenomena filled in.	
Each student fills out the graphic organizer about the landform shared with them.	Each student fills out the graphic organizer about the landform assigned to them
In their science notebook students write one thing they learned about maps today.	Students then do a "Turn and Learn" with someone who has a different landform.
Before this learning experience ends the teacher lets the students know they will be drawing their own map in our next session.	When complete, they seek out another pair and listen as they complete a "Turn and Learn".

Things a Teacher Might Say or Do	Things a Student Might Say or Do

MAPPING IT OUT/ DEVELOPING A MODEL

2-ESS2-2

Teacher sets the stage for this learning experience by saying **"You now know a great deal about maps and landforms. Today you are going to show just what you know by drawing a physical map that includes at least 3 different forms of land and 3 different types of water bodies. Who can remind me of some of the things you might see on a map? I will list them on the board."**

Your map should include:

- A map key with symbols
- A compass rose
- Man-made features (roads, house, building, etc.)
- Natural landforms (mountain, water, volcano, etc.)

Also, include **3 bodies of water** with labels and **3 different landforms** with labels and a **map key** where landforms and bodies of water are clearly identified. The map key might also might also include the symbols of trees, roads, bridges, etc. Remember, even if your map isn't real, it needs to make sense. 2-ESS2-2

At the end of the session, tell students that tomorrow they will be making a 3 dimensional representation of a map that includes a landform they think Princess Gie would like near to her home.

MAPPING IT OUT/ DEVELOPING A MODEL

Students will draw a real or imaginary map (a representation/model) in either their science notebooks or on a piece of drawing paper that includes at least **2 different types of landforms and 2 different types of water bodies**. 2-ESS2-2

Things a Teacher Might Say or Do | Things a Student Might Say or Do

MAPPING IT OUT PART 2 AND THINKING ABOUT PRINCESS GIE

2-ESS2-2

MATERIALS LIST:

- Modeling clay (assorted), specifically: green, brown and blue
- Cardboard for students to use for the base of 3D model
- Little flags for students to label

Develop a 3 dimensional map/model of landforms of where they think Princess Gie would like to live. 2-ESS2-2

In their science notebooks, students construct an explanation supported by evidence of their choice of landforms and why it would be important to Princess Gie, as well as and how the landforms they have included will make her life easier.

MAPPING IT OUT PART 2 AND THINKING ABOUT PRINCESS GIE

Students build a 3 dimensional model of a map that includes the landforms that they think Princess Gie would like in the place that she lives. 2-ESS2-2

In their science notebooks, students construct an explanation of why the landforms they have included would be important to Princess Gie and they evidence they have to back up this explanation.

Things a Teacher Might Say or Do	Things a Student Might Say or Do
WHAT HAVE WE LEARNED ABOUT LANDFORMS AND MAPPING? MAPPING FAIRLOP WATERS PARK	**WHAT HAVE WE LEARNED ABOUT LANDFORMS AND MAPPING? MAPPING FAIRLOP WATERS PARK**
2-ESS2-2 Students will demonstrate understanding of mapping as required by NGSS 2-ESS-2 by completing a short performance assessment from Paul Anderson's Wonder of Science. This performance assessment is currently online. 2-ESS2-2 In the classroom you might want the students to watch the drone footage of the park all together and maybe do an individual Notice and Wonder prior to. **"In the last two days you have been making models and mapping so today we are looking to see what you have learned. You will watch a video of a park in England. As you watch the video, do your own Notice and Wonder in your science notebook. You will then have those as you begin the task which asks you to map the park. There are pictures to help you remember what to include in your maps. You've got this!"** **"In our next learning experience, we will meet the real water princess! She will read you her story."**	Students complete Performance Assessment 2-ESS2-2

Things a Teacher Might Say or Do	Things a Student Might Say or Do
LEARNING MORE ABOUT PRINCESS GIE: GEORGIE BADEL TELLING HER STORY	**LEARNING MORE ABOUT PRINCESS GIE: GEORGIE BADEL TELLING HER STORY**
Introduce **Georgie Badel**; ***The Water Princess*** is based on her story, and she will re-read it. Georgie reading *The Water Princess*. Teacher asks/provides these sentence frames for children as a scaffold to answer the following questions: • What claims supported by evidence can you make from the story of *The Water Princess*? • Why do we think the author wrote the story?" • What did we learn about the world by engaging with *The Water Princess*?	Students listen to the story. "I know ____________________ (claim) because ____________________ (evidence). "I think the author wrote the story because ____________________ (evidence) to answer the following questions. I learned that many places in the world ____________________."

Things a Teacher Might Say or Do	Things a Student Might Say or Do
HOW CAN WE HELP TO CONSERVE WATER?	**HOW CAN WE HELP TO CONSERVE WATER?**
• The teacher works with students to help them understand how they can conserve water at home. - Brainstorm possibilities. • The teacher identifies a class project where students can collaborate and do to protect water either locally or globally **"Think back to The Water Princess and her struggle with both amounts and quality of the water. Let's first figure out what we can do here close to home."**	Student decide on something they would like to do to conserve water

> We are proud to support science teachers with carefully curated materials, intentional instructional design, clear standards alignment, and solid science thinking.

Teaching Channel Chief Academic Officer Dr. Wendy Amato wishes to express deep appreciation and gratitude to Kathy Renfrew for her curriculum development on this project. Her expertise in science education is unparalleled. Kathy is a 5D Science/STEM Educator, has received the Presidential Award for Excellence in Math and Science Teaching, and is a National Board Certified Teacher. She brings experience with the Wade Institute for Science Education and is currently working on science curriculum development for mySci Science through Washington University in St. Louis. Wendy and Kathy are proud to support science teachers with carefully curated materials, intentional instructional design, clear standards alignment, and solid science thinking. Questions about this resource can be directed to wendy.amato@teachingchannel.com.

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