mystery science

Lesson: “Where's the best place to hide a treasure?”

VIDEO TRANSCRIPT

EXPLORATION VIDEO 1

Hi. It's Jay from the Mystery Science team. I want to tell you a story about a treasure hunt. You may have heard treasure hunt stories before with pirates and chests of gold coins. Those stories are awesome, but mostly made up. This story is about a real treasure hunt in the US city of Boston. Somewhere in the city, a box had been hidden as part of a game. And to find it, you had to follow a set of mysterious clues. For nearly forty years, people searched in all kinds of locations with no luck, but this family was convinced they had the answer. They realized that the clues led to a park near a river, But there was a big problem. The park was under construction. With everything changing, it seemed like the box would be lost forever. Thankfully, there's a happy ending to this story. The clues had led the family to the right spot. With help from the construction crew, the box was eventually found, buried under home plate in the softball field. They won this jewel as their prize for solving the treasure hunt. This story got me thinking about the best place to hide a treasure. As a kid, I loved making up treasure hunts for my friends. Maybe you've created treasure hunts too. Choosing a hiding spot can be tricky. After all, you don't want anyone to find it too easily. That's no fun, but you probably don't want it to take forty years to find either. You also need to figure out how to help your friends find the spot. You could give them clues like the Boston treasure hunt, or you could make them one of these, a map.

Maps are a big part of treasure hunt stories. Usually, X marks the spot where you'll find fabulous riches or a top secret message. But maps are also helpful tools in everyday life. Just think about the maps you've seen. For instance, this map of an amusement park can help you find the Ferris wheel. It's this way. And the GPS directions people use on phones and in cars are a kind of map too. If I hide a treasure at this playground, I can make a map that shows important parts or features of the playground, like the swings and the slide and all the other fun things. And if I put an x on this feature here, you'll probably know right where to look for the treasure, in the sandbox. But let's say I make things harder. This map is of a place that's much bigger than a playground, but x still marks the spot where I've hidden a treasure, right here. Now take a moment to notice everything else that's on this map. What other things do you see? What might they look like in real life? I'll give you one important clue. On this map, the parts in blue represent water.

EXPLORATION VIDEO 2

Imagine this. You've traveled to the real area where I hid the treasure. Looking around, all you can see are trees, trees, and more trees. But somehow, you need to figure out which way to go to reach the treasure. If only you could get a better view of what's around you from above. Like a superhero flying in the sky. Instead of tree trunks, you'd see tree tops far below. Having a map is kind of like having superpowers. A map is like you're looking down at an area from high above. It's a picture that represents the features of a place and shows where those features are. You probably noticed that what you see on the map isn't exactly what you see in real life. A map is a smaller, simpler version of a real place. It's a kind of model. My treasure map shows the most important features of the land and water in this area. Like over here, you can see how the land rises up into tall peaks. Maybe you guessed that these pointy shapes here represent the

mountains. And over there, see how there's water flowing below you? It makes a curving path across the land. And remember how I said that blue on my map represents water? That means the water you saw from high above must be one of these two features on the map, here or here. I wonder if you can figure out which one. Which feature on the map do you think looks like this in real life?

EXPLORATION VIDEO 3

Maybe you noticed that these two water features have different shapes on the map. Each one has its own look. The water you saw from high above had a long, narrow shape, kind of like a wiggly line, like this shape on the map. Maybe you guessed that that water feature is a river. This water has a wider, rounder shape. If you flew by, it would look more like this in real life. My treasure map shows what the land and water is like in this area. And like I said before, those features are important. You'd want to know if you need to travel over water to reach the treasure, or have to climb up really high. And like other maps, those features can also help you find your way. Let's say I tell you to start at the base of the mountains, right here at this pink dot. Next, I tell you to go right. So you face the mountains, figure out which side is your right side, and head off this way. But wait, what if you start out facing away from the mountains? That might seem like a small change, but now your right side is over here. So you start traveling that way, the opposite way from before. Uh-oh, which one is the correct way to go? Luckily, many maps can give you another superpower, the power to find direction. Just look for a drawing like this on your map. You can call it a compass star or compass rose. The words on the compass star say north, south, east, and west. Maybe you've heard of those directions before. And see how there's an arrow pointing to each word? That shows you whenever you travel this direction, like the arrow is pointing, you're going north. And whenever you travel this direction, you're

going south. Going this way is east, and this way is west. And because a map is a model of a real place, those directions match where you'll find things in real life. Let's give this direction-finding superpower a try. The compass star is usually off to the side of the map, but it helps to think of it being wherever you are on the map, as if you're standing in the center of the compass star. So when you're at the base of the mountains here, then north is the direction going toward the mountains. And check it out. Unlike right and left, it doesn't matter which way you face. The directions stay the same. Going east will always be this way, and going west will always be this way. Now when I give you the hint to go west from the mountains, you can find the correct way to go. Take a look. West is this way. So from the mountains, you're heading toward this forest on the map. And my next clue is to stop when you pass the wide round area of water right here and then go north. If you go north from the pink dot, what will you be heading toward?

ACTIVITY INTRODUCTION VIDEO

In today's activity, you'll be going on a treasure hunt. A treasure map was just discovered, but there's a problem. It's missing a lot of pieces that you'll need to find the treasure. The mysterious mapmaker left a note with the treasure map. Let's see what it says. Welcome, adventurers. I've hidden a treasure somewhere in this land. To find it, you'll need to use the clues at hand. But first, you must fill out this treasure map. Without all the pieces on it. You'll surely be trapped. The mapmaker left some map pieces with different land and water features on them. They also left some clues to help you figure out which pieces go where to fill out your map. Once you finish your map, you'll use it to answer one final clue to find where the treasure is hidden. Can you solve this tricky treasure hunt? We'll get you started step by step.

ACTIVITY STEP 1

You'll work with a partner in this activity to solve the mapmaker's clues. You'll each have your own copy of the treasure map to put together. If you're working alone, that's okay too. When you're ready to move on, click the arrow on the right.

ACTIVITY STEP 2

Get your supplies.

ACTIVITY STEP 3

To complete your treasure map, you'll use these map pieces that the map maker left for you. One of you cut on the thick black line in the center of the page. Keep one half for yourself and give the other half to your partner. Then each of you cut out all of the map pieces along the dotted lines like this. Double check that you each have nine pieces.

ACTIVITY STEP 4

Spread your map pieces out in front of you. Each piece has a different shape of land or water on it. Those are called features. Sort the map pieces into two piles, land features and water features. If you're not sure which pieces go in which pile, that's okay. Just try your best. As you do this, discuss with your partner, how are the shapes of the features different from each other?

ACTIVITY STEP 5

The map maker wrote a note with a clue for each missing piece of the map. Let's take a look at the first one together. Greetings, treasure hunters. The first missing piece of your map starts one square east of the city. If we look at our map, we're starting here in the city. East is in this direction. So that means that the first missing map piece will start in this square here. Now let's look at the first clue together. A large round place filled with water, calm and still. Surrounded by land, swim in it until you've had your fill. Look at your map pieces and discuss with your partner. What land or water feature do you think this clue is describing? Why?

ACTIVITY STEP 6

Let's see the feature for ourselves. You head out from the city and travel east. After walking for a while, you see this. The missing feature is a lake. You may have figured this out because the clue described its shape as a large, round place. The clue also said it is filled with calm water and is surrounded by land on all sides. Now that we know for sure that there's a lake here, glue the lake piece onto your map like this.

ACTIVITY STEP 7

What's that on the sign next to the lake? It's a note with the next clue. Congratulations on solving the first clue. The next missing map piece starts one square east. The second feature that you seek is some gently rising land. In this place, the ground goes up, rounded like the knuckles on your hand. Now work with your partner to solve the clue. Look at your map pieces to figure out what land or water feature you think belongs there.

ACTIVITY STEP 8

Let's see the feature for ourselves. You continue on your journey going east from the lake to here. As you travel, the land starts to slowly rise up. Then it slopes back down again. Then it rises up even more. You stop to catch your breath and notice you're pretty high up. This must be the place. The missing feature on the map is a bunch of hills. They stretch out as far as you can see to the north. Now that you know this, you can fill out your map. Glue the hills piece onto your map like this.

ACTIVITY STEP 9

On top of the hill you're standing on, you see something. It's another note. Let's see what it says. To find the next missing piece, go north one square and then west four squares through the forest and beyond. They're the tallest of the tall, made of sturdy rock with pointy peaks. You might see snowflakes on top even outside of the winter weeks. Now work with your partner to solve the clue. Look at your map pieces to figure out what land or water feature you think belongs there.

ACTIVITY STEP 10

You continue on your journey north and then west for a long time. On your way, you pass through a forest with lots of tall trees. You check your map. Yes. You're heading the right way. After a while longer, you finally see it. The feature missing from the map is a mountain. It's huge, way taller than the hills you saw earlier with pointier peaks and even some snow on top. Actually, you can see it's not just one, but a lot of mountains. The mountains extend as far as

you can see to the south. Now that we know this, glue the mountains piece onto your map like this.

ACTIVITY STEP 11

Along with the mountains, you found your next clue. Let's see what it says. You're halfway done. Keep it up. The next missing map piece starts one square to the south and then one square to the east. This feature curves side to side just like a snake. Full of water moving quickly, falling in may be a mistake. Work with your partner to solve the clue. Look at your map pieces to figure out what land or water feature you think belongs there.

ACTIVITY STEP 12

You find a hiking trail and set off. You follow it along the side of the mountain as you travel south and then east. From up here, you can see that it curves back and forth through the landscape and extends far into the distance. You can also see and hear that the water is moving pretty quickly. Glue the river piece onto your map like this.

ACTIVITY STEP 13

At the overlook of the river, you find your next clue. Here's what it says. The next missing map piece starts two squares to the south. This flowing feature roars like thunder, falling down, down, down, down. Stand too close and you'll get soaked as water splashes on the ground. Work with your partner to solve the clue. Look at your map pieces to figure out what land or water feature you think belongs there.

ACTIVITY STEP 14

You find a way down from the overlook and then follow the twisting, turning river south. After a while, you start to hear a strange sound. It gets louder and louder the closer you get. You hear what sounds almost like rumbling thunder. Then, you see it. The missing feature is a waterfall. The water flows right over a big cliff. Glue the waterfall piece onto your map like this.

ACTIVITY STEP 15

Your treasure map is almost complete. Next to the falls, you see it, the last note. Let's check it out. The last missing map piece is in the far west, but you won't be able to reach it on foot. Travel one square west to the edge of the land and look out into the distance. There you'll see it. This feature is far away. To see it, you may need to squint your eyes. It peeks above the waves and is surrounded by water on all sides. One last time, work with your partner to solve the clue. Look at your map pieces to figure out what land or water feature you think belongs there.

ACTIVITY STEP 16

You travel west from the waterfall and eventually reach a cliff. You can't go any farther. It's the edge of the land. You squint your eyes and look to the horizon. All you can see is water. Wait, what's that in the distance? The last missing feature on your map is an island. Glue the island piece onto your map like this.

ACTIVITY STEP 17

Now that your map is complete, you can use it to solve the map maker's final clue and find the hidden treasure. The final clue describes the land and water features you can see from the spot where the treasure is hidden. Here's the final clue. To the north, you'll see tall rocky mountains. To the east, you'll see a roaring waterfall. To the west, you'll see an island in the ocean. Now look at your map. You're looking for a square that is surrounded by the three features described in the clue. That is where you'll find the hidden treasure. Discuss with your partner, in what square do you think the treasure is hidden? Once you decide, draw an X in that spot.

ACTIVITY STEP 18

Let's take a closer look at the final clue. The treasure is hidden somewhere with mountains to the north. We also know that there needs to be a waterfall to the east and an island to the west. That means that the only place the treasure could be is here. That's where you are now. The treasure must be nearby. Looking around, you see a glint of gold in the bushes. You go to check it out. Congratulations! You found the treasure that the map maker hid for you.

WRAP-UP VIDEO 1

The map maker definitely made things difficult, giving you a treasure map with empty spots, but you were able to find the missing piece for each clue by looking at what made these features different, like how the rounded shapes of the hills are different from the tall pointy peaks of the mountains. You also compared how areas of water are shaped, like how the shape of a lake surrounded by land is different from the long curving path of a river. And the flowing water in a

river moves differently than the water in a lake too. By recognizing these different land and water features, you were able to find your way to where X marked the spot. And now you're ready to find these features all over the world. Maps can help us identify different land and water features in all kinds of places. Let's give it a try. Here are three maps of three real places. We're looking for a feature that they all have. Each map shows areas of land, in green, and water, in blue. So you might be noticing that each one has land with water all the way around it, just like the island from the mapmaker's map. In fact, a piece of land surrounded by water is what makes an island an island. And while all islands have that in common, you've probably noticed that the islands on these maps each look a bit different, like how this island is rounded at one end and pointy at the other. Check it out. This is a real photograph taken from super high up in the sky. In fact, the white splotches you see are actually clouds. If you look closely, you can see that it shows the same place as this map. See how the shapes of the land match? Because maps are models of real places, they show each island's unique, real life shape. This is Madagascar. Now here's a new set of maps. See if you can figure out what feature these real places have in common. Here's a hint. It's a feature you found on the map maker's map too.

WRAP-UP VIDEO 2

This one might have been a little trickier, but you probably noticed that all three of these maps show areas of water in blue. These two places both have long, thin areas of water that follow curvy paths. Maybe you recognize that those are rivers. But wait, I don't see a river on this other map. This place has one large area of water and the map shows green land all the way around it. I see something similar here and here. You used clues to find a feature like these on the mapmaker's map. They're all lakes. Every lake is a large area of water surrounded by land. But not every lake is perfectly round. Just check out this one's unique shape. These maps show the

real life shape of each lake. This real place is the Great Salt Lake. This is Lake Victoria and this is Lake Bled. You can uncover a lot by looking closely at a map. After all, most places don't have just one feature to notice, they have many. For instance, here's a map of another real place. You may not have been there before, but I wonder how much you can discover about this place without even visiting. Based on the map, what are some land and water features you'd find there? See how many you can spot.

WRAP-UP VIDEO 3

This area has so many cool features. It's near the ocean and the mountains. There are rivers with curving paths and some large wide lakes. And see how the water in this lake goes all the way around these green areas of land? That shows there are islands here too, in a lake. Here's what one looks like in real life. It's an island where the land rises up into a peak. Just by looking at the map, you can start to imagine what it might be like to visit this place, the Central American country of Nicaragua. You figured out what features you'd see just like you did with the mapmaker's treasure map. That map was inspired by the real area around the city of Cape Town in South Africa. Being able to read a map really is like having a superpower. It's like you can instantly travel to a place in your mind and see what it's like by recognizing the land and water features found there. And while other things about a place can change a lot over time, its land and water features may not change as much. For instance, these photos of Athens, Greece were taken more than one hundred years apart, but this hill is still a special feature of the city. This picture of Shanghai in China was taken in the nineteen eighties, and here's the same city today. So many new skyscrapers have been built. But you can probably spot one big thing that's still there: the river. Maybe that's why land and water features are included in so many treasure hunt stories. A treasure might be hidden beneath a waterfall or in a cave at the

top of a mountain. Features like these are important parts of a place, so they're great for marking where you hid a treasure and for finding your way back to it. Remember that treasure in Boston that took forty years to find? The park it was hidden in changed a lot in that time, but the river was still there, and that feature made it possible to find the treasure years and years later. Now I'm curious about the land and water features in your area. Some might be features we've identified, like lakes and rivers, but there are lots of other features too. You might live near a smaller area of water, like a pond. You might live near tall, pointy mountains. Or maybe the tallest features near you have a different shape, like these wide, flat topped mesas. Or maybe the land near you dips down low, like a valley between hills or a deep canyon between rocky cliffs. Then again, maybe the land near you is flat and open. That's a feature too. It's called a plain. Out of all the land and water features that make up your area, I wonder where you would pick as the best place to hide a treasure. Maybe it's time to make your own map and plan a treasure hunt. Have fun, keep hunting for mysteries, and stay curious.