

~ SuperSleuths ~
Pico's Problem Continued
Mission Director/Supervisor Summary Task Sheet

Resources

Students will use these websites as they work on their tasks: <http://simscience.org/cracks/>
or <http://www.damsafety.org/layout/subsection.aspx?groupid=12&contentid=93>

Questions to Answer

- What does *upstream* mean?
- What does *downstream* mean?
- What are some bad things about building a dam?
- What are some good things about building a dam?
- What is a hydraulic roller? (You can draw a picture to help explain.)
- Why is the water near a dam dangerous?
- Why are small dams especially dangerous?
- What are the two main types of dams?
- Describe embankment dams. Include what they are made of and how they work. (You might want to draw a picture.)
- List the three kinds of concrete dams.
- Describe the each kind of concrete dam (gravity, buttress, arch). Include what they look like and how they work. (You might want to draw pictures.)
- Why do dams crack?
- What happens when dams crack?
- What side of a dam is more likely to crack?
- List the four dams that cracked. What kinds of dams were they? Where did they crack? Why did they crack?
- Based on the animations and information about the four dams that cracked, do you think there is a certain kind of dam that has more problems with cracking? Why or why not? If you answered yes, also tell what kind of dam.

SuperSleuth Super Advice

- Specific advice will vary from group to group.
- Remember the reason you are answering the questions. (Look back over the first two SuperSleuth sheets.)
- Do your best!

Conclusion

1. Think back to our big question: Should Pico build a dam? Think about the information you found about dams, and answer our big question. Explain why you answered the way you did.
2. Is there anything else you think is important to tell the citizens of Pico about dams? Write it down here.

~ SuperSleuths ~
Pico's Problem Continued
Task Sheet 1

Committee Member Roles

Decide who will be the navigator, the scribe, and the representative for your committee. Look back at page two (2) of your SuperSleuths sheet to review what each person has to do. Write your names next to the roles you have, and get busy sleuthing! (Use this task sheet as a guide to find the information you need.)

Navigator _____

Scribe _____

Representative _____

Resources

Use these websites as you work on your task: <http://www.wordcentral.com> and <http://simscience.org/cracks/>

SuperSleuth Super Advice

- Go to www.wordcentral.com first. This is an online dictionary. All you have to do is type in the word you want to look up in the little white box that is next to the word *Dictionary* and the gray *Find* button near the top of the blue part of the page. Type in the word *upstream* and hit *Find*. Once you read the definition of *upstream*, type *downstream* in the box and hit *Find*.
- To answer question 3, go to simscience.org/cracks/. Read through the introduction on the first page. Then click the silver forward arrow. Read the second page about dams. Then answer question number three.
- Remember the reason you are answering the questions. (Look back over the first two SuperSleuth sheets.)
- Do your best!
- Once you answer all your questions, you are free to click on any links or buttons to keep exploring the website about dams.

Questions to Answer

1. What does *upstream* mean?

2. What does *downstream* mean?

3. The last paragraph on the “What is a dam?” page says that when a dam is built, one side of the dam turns into a lake and one dries up. Thinking about this, what do you think happens to the side that is *upstream* from the dam and what happens to the side that is *downstream* from the dam?

Conclusion

1. Think about the information you found about dams, and answer our big question: Should Pico build a dam? Explain why or why not.

2. Is there anything else you the citizens of Pico should know about dams? Write it down here.

~ SuperSleuths ~
Pico's Problem Continued
Task Sheet 2

Committee Member Roles

Decide who will be the navigator, the scribe, and the representative for your committee. Look back at page two (2) of your SuperSleuths sheet to review what each person has to do. Write your names next to the roles you have, and get busy sleuthing! (Use this task sheet as a guide to find the information you need.)

Navigator _____

Scribe _____

Representative _____

Resources

Use this website as you work on your task: <http://simscience.org/cracks/>
Click on the green oval button that says "Beginning".

SuperSleuth Super Advice

- Read the introduction on the first page (given by the beaver).
- Then click on the silver right arrow at the bottom of the page to continue reading. (You will have to click the arrow again after reading about the good things to get to the page about the bad things.)
- Remember the reason you are answering the questions. (Look back over the first two SuperSleuth sheets.)
- Do your best!
- Once you answer all your questions, you are free to click on any links or buttons to keep exploring the website about dams.

Questions to Answer

List as many good things about building a dam as you can.

List as many bad things about building a dam as you can.

Conclusion

1. Think about the information you found about dams, and answer our big question: Should Pico build a dam? Explain why or why not.

2. Is there anything else you the citizens of Pico should know about dams? Write it down here.

~ SuperSleuths ~
Pico's Problem Continued
Task Sheet 3

Committee Member Roles

Decide who will be the navigator, the scribe, and the representative for your committee. Look back at page two (2) of your SuperSleuths sheet to review what each person has to do. Write your names next to the roles you have, and get busy sleuthing! (Use this task sheet as a guide to find the information you need.)

Navigator _____

Scribe _____

Representative _____

Resources

Use this website as you work on your task: <http://simscience.org/cracks/>
Click on the green oval button that says "Beginning".

SuperSleuth Super Advice

- Read the introduction on the first page (given by the beaver).
- Then click on the silver right arrows at the bottom of the pages to move through the next few pages. You should be able to get enough information to answer your questions by the time you get to the web page that lists the kinds of dams.
- Remember the reason you are answering the questions. (Look back over the first two SuperSleuth sheets.)
- Do your best!
- Once you answer all your questions, you are free to click on links and buttons to keep exploring the website about dams.

Questions to Answer

1. What do dams (beaver or people dams) do to the water in a river?

2. What are the two main types of dams? (Hint, the two types of dams are made of different materials.)
 - 1.
 - 2.
3. Describe embankment dams. Include what they are made of, how they work, and any other important information. (You might want to draw a picture.)

Conclusion

1. Think about the information you found about dams, and answer our big question: Should Pico build a dam? Explain why or why not.
2. Is there anything else you the citizens of Pico should know about dams? Write it down here.

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Pico's Problem Continued
Task Sheet 4

Committee Member Roles

Decide who will be the navigator, the scribe, and the representative for your committee. Look back at page two (2) of your SuperSleuths sheet to review what each person has to do. Write your names next to the roles you have, and get busy sleuthing! (Use this task sheet as a guide to find the information you need.)

Navigator _____

Scribe _____

Representative _____

Resources

Use this website as you work on your task: <http://www.damsafety.org>

SuperSleuth Super Advice

- Click on **Students** (white letters on the black background near the top of the page).
- Then click on *Kids' Section*. (It is the third thing on the list next to a blue square on the left side of the web page.)
- Finally, click on the last sentence at the bottom of the page that comes up (about dam safety). Now read and look at the pictures to answer your questions.
- Remember the reason you are answering the questions. (Look back over the first two SuperSleuth sheets.)
- Do your best!
- Once you answer all your questions, you are free to click on any links or buttons to keep exploring the website about dams.

Questions to Answer

1. What is a hydraulic roller? (You can draw a picture to help explain.)

2. Why is the water near a dam dangerous?

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Pico's Problem Continued
Task Sheet 5

Committee Member Roles

Decide who will be the navigator, the scribe, and the representative for your committee. Look back at page two (2) of your SuperSleuths sheet to review what each person has to do. Write your names next to the roles you have, and get busy sleuthing! (Use this task sheet as a guide to find the information you need.)

Navigator _____

Scribe _____

Representative _____

Resources

Use this website as you work on your task: <http://simscience.org/cracks/>
Click on the green oval button that says "Beginning".

SuperSleuth Super Advice

- Read the introduction on the first page (given by the beaver).
- Then click the silver right arrow buttons at the bottoms of the next few pages until you get to the page that describes kinds of dams.
- Once you read about the kinds of dams, click on the right arrow button one more time to learn about gravity dams.
- Remember the reason you are answering the questions.
- Do your best!
- Once you answer all your questions, you are free to click on any links or buttons to keep exploring the website about dams.

Questions to Answer

List the three kinds of concrete dams.

- 1.
- 2.
- 3.

Describe gravity dams. Include what they look like, how they work, and anything else you think is important. You may even want to draw pictures. (If you need more room, use the back of your task sheets.)

Conclusion

1. Think about the information you found about dams, and answer our big question: Should Pico build a dam? Explain why or why not.

2. Is there anything else you the citizens of Pico should know about dams? Write it down here.

~ SuperSleuths ~
Pico's Problem Continued
Task Sheet 6

Committee Member Roles

Decide who will be the navigator, the scribe, and the representative for your committee. Look back at page two (2) of your SuperSleuths sheet to review what each person has to do. Write your names next to the roles you have, and get busy sleuthing! (Use this task sheet as a guide to find the information you need.)

Navigator _____

Scribe _____

Representative _____

Resources

Use this website as you work on your task: <http://simscience.org/cracks/>
Click on the green oval button that says "Beginning".

SuperSleuth Super Advice

- Read the introduction (given by the beaver) on the first page.
- Then go to the top of your navigator window and type http://simscience.org/cracks/beginning/dams_buttress.html in the location space. Once you have typed in the address, hit the enter/return key to go to that page of the website. You'll find the information to answer your question on this page.
- Remember the reason you are answering the questions. (Look back over the first two SuperSleuth sheets.)
- Do your best!
- Once you answer all your questions, you are free to click on any links or buttons to keep exploring the website about dams.

Questions to Answer

Describe buttress dams. Include what they look like, how they work, and anything else you think is important. You may even want to draw pictures. (Use the back of your task sheets, if you need more room.)

Conclusion

1. Think about the information you found about dams, and answer our big question:
Should Pico build a dam? Explain why or why not.

2. Is there anything else you the citizens of Pico should know about dams? Write it
down here.

~ SuperSleuths ~
Pico's Problem Continued
Task Sheet 7

Committee Member Roles

Decide who will be the navigator, the scribe, and the representative for your committee. Look back at page two (2) of your SuperSleuths sheet to review what each person has to do. Write your names next to the roles you have, and get busy sleuthing! (Use this task sheet as a guide to find the information you need.)

Navigator _____

Scribe _____

Representative _____

Resources

Use this website as you work on your task: <http://simscience.org/cracks/>
Click on the green oval button that says "Beginning".

SuperSleuth Super Advice

- Read the introduction (given by the beaver) on the first page. Then go to the top of your navigator window and type http://simscience.org/cracks/beginning/dams_arch.html in the location space. Once you have typed in the address, hit the enter/return key to go to that page of the website. You'll find the information to answer your question on this page.
- Remember the reason you are answering the questions. (Look back over the first two SuperSleuth sheets.)
- Do your best!
- Once you answer all your questions, you are free to click on any links or buttons to keep exploring the website about dams.

Questions to Answer

Describe arch dams. Include what they look like, how they work, and anything else you think is important. You may even want to draw pictures. (Use the back of your task sheets, if you need more room.)

Conclusion

1. Think about the information you found about dams, and answer our big question:
Should Pico build a dam? Explain why or why not.

2. Is there anything else you the citizens of Pico should know about dams? Write it down here.

~ SuperSleuths ~
Pico's Problem Continued
Task Sheet 8

Committee Member Roles

Decide who will be the navigator, the scribe, and the representative for your committee. Look back at page two (2) of your SuperSleuths sheet to review what each person has to do. Write your names next to the roles you have, and get busy sleuthing! (Use this task sheet as a guide to find the information you need.)

Navigator _____

Scribe _____

Representative _____

Resources

Use this website as you work on your task: <http://simscience.org/cracks/>
Click on the green oval button that says "Beginning".

SuperSleuth Super Advice

- Read the introduction (given by the beaver) on the first page.
- Then click on the word *cracks* in the list on the left side of the page at the top. (*Cracks* is the 3rd word down.)
- Read through the first few pages about cracks. (Click the right arrow button to move onto the next page.)
- Do the experiment with your extra pieces of paper.
- You will find answers to most of your questions after the heading *Causes of Cracking*.
- Remember the reason you are answering the questions. (Look back over the first two SuperSleuth sheets.)
- Do your best!
- Once you answer all your questions, you are free to click on any links or buttons to keep exploring the website about dams.

Questions to Answer

1. Why do dams crack?

2. What can happen when dams crack? (Why are cracks such a bad thing in dams?)

3. On which side of a dam are cracks usually the biggest problem?

Conclusion

1. Think about the information you found about dams, and answer our big question: Should Pico build a dam? Explain why or why not.

2. Is there anything else you the citizens of Pico should know about dams? Write it down here.

~ SuperSleuths ~
Pico's Problem Continued
Task Sheet 9

Committee Member Roles

Decide who will be the navigator, the scribe, and the representative for your committee. Look back at page two (2) of your SuperSleuths sheet to review what each person has to do. Write your names next to the roles you have, and get busy sleuthing! (Use this task sheet as a guide to find the information you need.)

Navigator _____

Scribe _____

Representative _____

Resources

Use this website as you work on your task: <http://simscience.org/cracks/>
Click on the green oval button that says "Beginning".

SuperSleuth Super Advice

- Read the introduction (given by the beaver) on the first page.
- Then click on the word *examples* in the list on the left side of the page at the top. (*Examples* is the 4th word down.)
- Read about the dams that have cracked and watch the animations of cracking dams.
- Remember the reason you are answering the questions. (Look back over the first two SuperSleuth sheets.)
- Do your best!
- Once you answer all your questions, you are free to click on any links or buttons to keep exploring the website about dams.

Questions to Answer

- List the four dams you read about that have cracked.
- Write some information about each dam next to or below the name of the dam. Things you might want to write about are: the type of dam (arch, buttress, gravity, or embankment), where the dam cracked, and why it cracked.

1.

2.

3.

4.

Conclusion

1. Think about the information you found about dams, and answer our big question:
Should Pico build a dam? Explain why or why not.

2. Is there anything else you the citizens of Pico should know about dams? Write it
down here.