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| Food ChainsKaty Fleming | Food Chains |
| Image result for lightbulb clipart**Overarching Question:** How does energy move among producers, herbivores, carnivores, omnivores, and decomposers in a food chain? What role does each organism play in a food chain?What characteristics give each organism its role?How can the movement of energy be shown in a model? | Image result for lightbulb clipart**Overarching Question:** How does energy move among producers, herbivores, carnivores, omnivores, and decomposers in a food chain?What role does each organism play in a food chain?What characteristics give each organism its role?How can the movement of energy be shown in a model? |

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| **Lines of Evidence – Food Chain Game***Food chains are made up of several different organisms. These make up the parts of the food chain, such as producers, consumers, decomposers, and so on.* | **Lines of Evidence – Food Chain Game** |
| **Lines of Evidence – Food Chain Definitions***Each organism has its own role and job. If it doesn’t do its job, it affects the other components of the food chain.* | **Lines of Evidence – Food Chain Definitions** |
| **Lines of Evidence – Food Chain Model***The model shows that producers start on the bottom of the food chain, then the levels of consumers are next, and the predator finishes it.* | **Lines of Evidence – Food Chain Model** |
| **Big Aha Thesis Statement***Energy moves through the organisms in a food chain as they are consumed. For example, as a consumer eats a producer, the energy from that producer is now in the consumer.* | **Big Aha Thesis Statement** |
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| **Engage – Brainpop Video** C:\Users\Katy Fleming\AppData\Local\Microsoft\Windows\INetCache\Content.Word\brainpop.png**Food Chains. (n.d.). Retrieved April 25, 2017, from** <https://www.brainpop.com/science/ecologyandbehavior/foodchains>In this video, the way a food chain works is explained. Pay attention to the concepts and think about what is prior knowledge for you, and what is new. Then, answer the questions on the next page.  | **Engage – Brainpop Video** C:\Users\Katy Fleming\AppData\Local\Microsoft\Windows\INetCache\Content.Word\brainpop.png**Food Chains. (n.d.). Retrieved April 25, 2017, from** <https://www.brainpop.com/science/ecologyandbehavior/foodchains>In this video, the way a food chain works is explained. Pay attention to the concepts and think about what is prior knowledge for you, and what is new. Then, answer the questions on the next page. |
| **Engage – Questions**What is something you already knew that you saw in the video? What did you learn that was new knowledge? | **Engage – Questions**What is something you already knew that you saw in the video? What did you learn that was new knowledge? |
| **Explore – Food Chain Game**C:\Users\Katy Fleming\AppData\Local\Microsoft\Windows\INetCache\Content.Word\foodchaingame.jpg**Food Chain Game. (n.d.). Retrieved April 25, 2017, from** <https://www.sheppardsoftware.com/content/animals/kidscorner/games/foodchaingame.htm>Before you start your game, write a hypothesis about how you think energy moves through a food chain.Share some of the relationships you saw between organisms in the food chains. | **Explore – Food Chain Game**C:\Users\Katy Fleming\AppData\Local\Microsoft\Windows\INetCache\Content.Word\foodchaingame.jpg**Food Chain Game. (n.d.). Retrieved April 25, 2017, from** <https://www.sheppardsoftware.com/content/animals/kidscorner/games/foodchaingame.htm>Before you start your game, write a hypothesis about how you think energy moves through a food chain.Share some of the relationships you saw between organisms in these food chains. |
| **Food Chain Game CER****Claim** (Write a sentence stating the relationship between organisms in a food chain.)**Evidence** (Provide the names and roles of the organism in a food chain. Describe their roles.)**Reasoning** (Explain how your evidence supports your claim. Describe how the organisms are connected.) | **Food Chain Game CER****Claim** (Write a sentence stating the relationship between organisms in a food chain.)**Evidence** (Provide the names and roles of the organism in a food chain. Describe their roles.)**Reasoning** (Explain how your evidence supports your claim. Describe how the organisms are connected.) |
| **Explain – Food Chain Notes (Terrestrial)**A **food chain** shows the movement of food energy through organisms as one living thing eats another.Image result for sun and grass clipartIt starts with **producers**, which get their energy from the sun. Image result for grasshopper clipartThen, the energy from the producer is passed to the **primary consumer**, usually a **herbivore**. Image result for mouse clipartNext, the **second-level­ consumer** eats the primary, or first-level, consumer. In this case, it’s an omnivore. Image result for snake clipartFinally, the **top-level consumer** eats the second-level consumer. This **carnivore** is at the top of the food chain.Image result for worms in the ground clipartWhen an organism dies, detrivores or **decomposers** eat their remains, then start the cycle again.  | **Explain – Food Chain Notes (Terrestrial)**A **food chain** shows the movement of food energy through organisms as one living thing eats another.Image result for sun and grass clipartIt starts with **producers**, which get their energy from the sun. Image result for grasshopper clipartThen, the energy from the producer is passed to the **primary consumer**, usually a **herbivore**. Image result for mouse clipartNext, the **second-level­ consumer** eats the primary, or first-level, consumer. In this case, it’s an omnivore. Image result for snake clipartFinally, the **top-level consumer** eats the second-level consumer. This **carnivore** is at the top of the food chain.Image result for worms in the ground clipartWhen an organism dies, detrivores or **decomposers** eat their remains, then start the cycle again.  |
| **Explain – Food Chain Notes (Aquatic)**Food chains also take place in water. This is what we call an **aquatic** food chain. Aquatic food chains have the same components that terrestrial (or land) food chains have, but they have different organisms in their ecosystems.Image result for aquatic food chain\*Remember, an **ecosystem** is the complex of a community of organisms and its environment functioning as an ecological unit. Food chains occur in every ecosystem. | **Explain – Food Chain Notes (Aquatic)**Food chains also take place in water. This is what we call an **aquatic** food chain. Aquatic food chains have the same components that terrestrial (or land) food chains have, but they have different organisms in their ecosystems.Image result for aquatic food chain\*Remember, an **ecosystem** is the complex of a community of organisms and its environment functioning as an ecological unit. Food chains occur in every ecosystem. |
| **Elaborate – Food Chain Model**In this activity, you will building your own model of a food chain using paper links and notecards. First, cut apart your pieces of paper to create the strips for your links. When you have the strips all cut out, connect them using tape or glue to create links.Decide what kind of food chain you want to create. It can be terrestrial or aquatic, simple or complex – just make sure it’s **accurate**! You may use any resources you have to research your food chain, or use one from one of our other activities.Draw and color the organisms from your food chain on the notecards, then attach them to your links to show the movement of energy. You’re done! | **Elaborate – Food Chain Model**In this activity, you will building your own model of a food chain using paper links and notecards. First, cut apart your pieces of paper to create the strips for your links. When you have the strips all cut out, connect them using tape or glue to create links.Decide what kind of food chain you want to create. It can be terrestrial or aquatic, simple or complex – just make sure it’s **accurate**! You may use any resources you have to research your food chain, or use one from one of our other activities.Draw and color the organisms from your food chain on the notecards, then attach them to your links to show the movement of energy. You’re done! |
| **Food Chain Model CER****Claim** (Write a sentence stating how energy moves in a food chain.)**Evidence** (Provide evidence from the activity to support your claim. Describe what causes the movement of energy.)**Reasoning** (Explain how your evidence supports your claim. Describe how this movement is the same in every food chain.) | **Food Chain Model CER****Claim** (Write a sentence stating how energy moves in a food chain.)**Evidence** (Provide evidence from the activity to support your claim. Describe what causes the movement of energy.)**Reasoning** (Explain how your evidence supports your claim. Describe how this movement is the same in every food chain.) |
| **Completed Food Chain Activity**Have the students actually make a Holiday chain to glue their food chain to!  Check out the awesome FREE Food Chain Display Template at Teachers Pay Teachers:  http://www.teacherspayteachers.com/Product/Food-Chain-Display-Template-1291556: **Allysa, K. (n.d.). Food Chain Display. Retrieved April 25, 2017, from https://www.pinterest.com/pin/118289927682279815/** | **Completed Food Chain Activity**Have the students actually make a Holiday chain to glue their food chain to!  Check out the awesome FREE Food Chain Display Template at Teachers Pay Teachers:  http://www.teacherspayteachers.com/Product/Food-Chain-Display-Template-1291556: **Allysa, K. (n.d.). Food Chain Display. Retrieved April 25, 2017, from https://www.pinterest.com/pin/118289927682279815/** |
| **Turn and Talk**Turn to a neighbor and share your food chains with each other. Ask each other questions about your food chains. Here are some to get you started:Which animal is your producer?How many consumers do you have? What are they?How does energy move in your chain?If you took out one of your organisms, how would it affect your chain? | **Turn and Talk**Turn to a neighbor and share your food chains with each other. Ask each other questions about your food chains. Here are some to get you started:Which animal is your producer?How many consumers do you have? What are they?How does energy move in your chain?If you took out one of your organisms, how would it affect your chain? |
| **Evaluate – Questions**1. The source of all energy in a food chain is…
	1. Grass
	2. The sun
	3. Rain
	4. The moon
2. Which of the following is an example of a producer?
	1. Caterpillar
	2. Bird
	3. Soil
	4. Dandelion
3. Which category best describes an animal that only eats plants?
	1. Herbivore
	2. Producer
	3. Carnivore
	4. Omnivore
4. What animals in your model are predators?
5. Which of them are prey?
6. Explain how energy moves through the food chain in your model.

Look at the food chain below.Image result for fourth grade food chain picture1. If all the snakes were eaten, which animal would most likely be threatened by starvation?

The bird and the owl1. If all the snakes were eaten, which animal population would most likely increase?

The frog population | **Evaluate – Questions**1. The source of all energy in a food chain is…
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| **Evaluate – Extra Practice Directions**For your final activity, use your knowledge of food chains and ecosystems to fill out the following worksheet. Draw animals in the empty circles to create your own food chain. Pay attention to the first organism given so that the rest of your food chain aligns with it.**Oettinger, J. (n.d.). Worksheets on Food Chains. Retrieved April 25, 2017, from https://www.pinterest.com/pin/138204282287570168/** | **Evaluate – Extra Practice Directions**For your final activity, use your knowledge of food chains and ecosystems to fill out the following worksheet. Draw animals in the empty circles to create your own food chain. Pay attention to the first organism given so that the rest of your food chain aligns with it.**Oettinger, J. (n.d.). Worksheets on Food Chains. Retrieved April 25, 2017, from https://www.pinterest.com/pin/138204282287570168** |



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| **Big Ah-ha Thesis** In this unit, we learned all about food chains – what they are, the parts of one, how they work, etc. We began with a video explaining food chains, then played a game to give us practice, and created our own food chains using paper links. The main question of our unit was “How does energy move among producers, herbivores, carnivores, omnivores, and decomposers in a food chain?”, and after completing this unit, we can now answer it. There are several components of a food chain, each one with its own role. Some of these may be the consumers, producers, and decomposers. As one organisms eats the other, and then another one eats that one, and so on, the energy from each organism gets passed to the next one. This happens in humans, too, because as we eat food, we get energy.  | **Big Ah-ha Thesis** |
| **Self-Reflection Paragraph** Before this unit, I wasn’t too knowledgeable on food chains. I knew the basics, but didn’t have the deep understanding that I do now. With each activity, I found out more and more about food chains, and now feel like an expert on them. Being able to create my own food chain with the paper links made me feel confident in what I had learned. I enjoyed seeing my classmates’ food chains, too! | **Self-Reflection Paragraph** |