

## **Explain: Lorenzo's Oil**

### **THE ACTIVITY**

While watching the movie, work on the questions below.

1. What are the first symptoms that show up for Lorenzo Odone?
2. What does the school original suggest? (Both regarding Lorenzo's behavior and what they want to do with Lorenzo.)
3. What additional symptoms start showing up?
4. The Odone's are very well educated and are reasonably well off financially. Do you think that being poor or having less education would have an effect on a family if they had a son with ALD?
5. How does the doctor finally make a definitive diagnosis of ALD? (hint: What is building up in Lorenzo's blood?) Why is this bad for the body? (What part of the body does it affect and what does it do?)
6. What types of kids get this disease? (Boys? Girls? What age?)
7. What is the viewpoint of the doctor that diagnoses Lorenzo toward the disease and Lorenzo's future?
8. What additional symptoms does the dad read will happen to his son over the next year or two?
9. The inheritance pattern for this disease is referred to as \_\_\_\_\_.
10. Lorenzo inherited this disease from which parent? Is it the parent's "fault" that the child inherited the disease? How do you think that parent feels about passing this gene along?
11. What protocol does Lorenzo's parents try to help their son fight the disease? What is the reasoning behind the protocol? If the protocol works, what does the doctor claim it should do (reverse all symptoms, slow the progression of the disease, stop the disease from getting any worse)?
12. What are the results of Lorenzo being part of the experimental protocol? How do the doctors and the Odone's explain this result?
13. After the second experimental protocol (the radiation treatments) don't seem to help either, how do Augusto and Michaela decide to approach Lorenzo's disease?
14. The doctors, the other ALD parents, and the Odone's are all looking for a cure. What is the difference between the Odone's approach and everyone else's? How are their goals different?
15. The Odone's suggest having a symposium to get many of the ALD researchers all working together on the disease. Why is it hard to get funding for this?
16. At the symposium, the first idea heard involved what type of medical treatment? What was the time frame mentioned to develop that kind of treatment?
17. Between the symposium and research the Odone's have done, a new idea presents itself for treating the disease. What is this idea and how is it supposed to work in the body?
18. In the new therapy, what is the manipulated variable? What is the responding variable? Why isn't this a good study or experiment?
19. What are the results of the new therapy?
20. When Augusto and the doctor get together and discuss Augusto's paper clip model, what idea presents itself? What is the basis behind the new idea?
21. Who is Lorenzo's "rat" or "guinea pig"? Why is this person a good choice to test the new oil?
22. How well does the new oil treatment work? (Mention both the levels of long chain fatty acids in Lorenzo's blood and Lorenzo's symptoms)
23. What would be the final thing that would have to happen to "cure" Lorenzo? What does it have to do with "shaking puppies"?

## **FOLLOW UP QUESTIONS**

**Answer the following questions in your notebook using complete sentences.**

1. Create a Punnett square for the Odone family. If Lorenzo had any sisters, what is the chance that they would get the disease? What is the chance that they would carry the disease? What is the chance that they would not have the gene at all?
2. Using that same Punnett square, describe the outcomes for possible brothers of Lorenzo.
3. How would a Punnett square for Michaela's mom & dad compare to the Punnett square you just drew? What are the chances that Lorenzo's aunt (Michaela's sister) is a carrier for ALD?
4. If you found you or your spouse were a carrier for ALD, would you have children?
5. What is an "orphan drug"?
6. Research online to find a drug that is currently considered an orphan drug. What is the name of the drug you found? What condition or disease would it be used to treat? How many people have this disease?
7. Why is the movie called "Lorenzo's oil"? What exactly is "Lorenzo's oil"?
8. In the past, boys with ALD always died before reproductive age. With the new treatment of Lorenzo's oil, boys with ALD could have kids. Make two Punnett squares. In the first, cross a dad with ALD with a woman who does not have the gene. In the second square, show the cross of a dad with ALD with a woman who is a carrier for ALD. Discuss the possible consequences shown in the two squares you just filled in.