

Science Time
Program Content for June 7, 2017

Read the article 'Astronomers detect 'gravitational waves' from black holes' on page A4 of the Friday, June 2, 2017 edition of The Seattle Times.

Objective

- I can explain what LIGO is and how it detects black holes.

Next Generation Science Standards (NGSS) connection

Connections to Nature of Science

Scientific Knowledge Assumes an Order and Consistency in Natural Systems

- Scientific knowledge is based on the assumption that natural laws operate today as they did in the past and they will continue to do so in the future.
- Science assumes the universe is a vast single system in which basic laws are consistent.

Pre-reading and Vocabulary: Define each term and then use it in a sentence to demonstrate your understanding.

1. merge
2. cosmos
3. Albert Einstein
4. astronomer

Comprehension Questions

1. What did astronomers recently detect?
2. How large was the pit formed by the merger of two black holes?
3. How far away from Earth did the black hole merger occur?
4. How many black hole mergers have been detected since 2015?
5. What does LIGO stand for?
6. How many astronomers and physicists work together on LIGO?
7. How much money and how many years did the National Science Foundation spend on LIGO?
8. What was the size of each of the two (2) black holes that recently merged?
9. What does the merger of two black holes sound like on LIGO?
10. What is the name of the explosion that occurs when stars burn up all of their fuel and collapse?
11. What equipment does LIGO use to detect the stretching and squeezing of space?
12. What will Virgo in Italy allow astronomers to do?

Prompts and Extensions

1. [Watch](#) how a black hole is formed.
2. [Watch](#) how LIGO hears gravitational waves
3. Learn more about LIGO at it's [homepage](#).

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