

The Sixth Day – High School Activity

True or False Questions:

Answers with detailed explanations are further below.

- T F 1. SIN tests have been developed to transplant memories and feelings into a clone via optic nerves.
- T F 2. Science and technology are inherently evil.
- T F 3. Clones are real, living forms of life that can experience pain and happiness.
- T F 4. Clones are made from templates, as depicted in the movie *The Sixth Day*, and can then be modified by inserting DNA.
- T F 5. It is possible to detect the presence of a gene that increases one's chances of developing breast cancer.
- T F 6. Language can be transmitted to your clone.
- T F 7. A scan of your retina can reveal your innermost thoughts and desires.
- T F 8. RePet's claim is correct: "Your RePet will be exactly the same. Your dog will remember the same old tricks... remember where his bones are buried."
- T F 9. DNA can be extracted from fur or blood.
- T F 10. It is not possible to tell the difference between a cloned pet and your natural pet.
- T F 11. Today, pet cloning can be carried out in four hours through agencies like RePet.
- T F 12. Currently, it costs 1.2 millions dollars to clone a human.

Answers to True or False Questions:

- 1. FALSE** - It is not possible to transplant thoughts and feelings into a clone. The method, demonstrated by Dr. Drucker in *The Sixth Day*, is not feasible. A clone develops her own feelings through her personal experiences. Just as two twins have identical genetic makeups, they have different personalities.
- 2. FALSE** – Breakthroughs in science and technology have improved our everyday life. Without the discovery of electricity and invention of the computer, we would not be able to view this website. Without the discovery of vaccines and antibiotics, many of us wouldn't make it past our childhood. The idea of science and technology being good or evil lies within the scientists' and politicians' intentions. They ultimately decide what becomes of new discoveries and its implications on society.
- 3. TRUE** – Clones are made from pre-existing DNA inserted into a cell. This cell develops and grows into an adult form. The fact that a clone is genetically identical to another organism does not prevent it from being real or living.
- 4. FALSE** – In Dr. Weir's clinic in *the Sixth Day*, we see a modern-looking room filled with tanks. Template humans are grown and stored in the tank. When a template is about to be "humanised", DNA is inserted into them. However, this idea works against what we know about cell biology. DNA is needed to direct the cell's machinery and dictate what happens. It is impossible to develop a healthy human clone without a complete set of chromosomes present in the zygote.
- 5. TRUE** – It is possible to detect certain genes that increases one's chances of developing cancer. Mutated copies of the BRCA1 gene, for example, greatly increases one's odd of developing cancer. More specifically, an individual with this gene has a greater probability of getting breast or ovarian cancer. Such an individual may opt to have more frequent screenings or have their breasts or ovaries removed.

But one must remember that having a mutated copy of the BRCA1 gene does not necessarily imply that one will definitely develop cancer. Cancer is disease that depends on one's genetic makeup and environment.

6. **FALSE** – Please refer back to question 1. Similar to thoughts and feelings, language can not be transmitted to a clone. Language is acquired and thus, a clone must learn how to read and speak.
7. **FALSE** – It is not possible to have your thoughts and desires decoded by a retinal scan, as shown in *The Sixth Day*. This is purely scientific fantasy.
8. **FALSE** – Once again, memories and thoughts cannot be transmitted to a clone.
9. **TRUE** – It is possible to extract DNA from fur or blood cells. DNA is obtained by breaking up the cell's membrane with a detergent. The small amount of DNA extracted can be amplified with PCR or Polymerase Chain Reaction. This method of amplification is often used in forensic analysis of crime scenes where only trace amounts of DNA can be obtained.
10. **FALSE** – We can think of clones as delayed identical twins. If we were not familiar with a pair of twins, they would appear to be identical. However, once we get to know them better, we notice that twins have different personalities and even look slightly differently from each other. Similarly, cloned dogs are like identical twins. They look very similar, but have different personalities and even a patch of fur may be located at a slightly different place due to environmental influences.
11. **FALSE** – In the movie, a full sized adult dog was generated within hours. In reality, a cloned animal develops at a regular rate; it takes years for an animal to develop from an embryo to an adult. Thus, it is not possible to clone a pet in four hours.
12. **FALSE** – Current laws do not allow human cloning.