

June 11, 2008

1.

- a. false - Mutations are changes in DNA that can be harmful to the cell
- b. false - Asexual reproduction is disadvantageous because the offspring show little or no genetic diversity.
- c. true
- d. true
- e. true
- f. true
- g. true
- h. true
- i. false - Harmful or lethal mutations have big effects on the health of large multicellular organisms.
- j. true
- k. true

2.

Step 1: The cell is diploid. Its chromosomes, which contain the genetic materials are coiled together.

Step 2: The chromosomes separate, each carrying different genes.

Step 3: The cell is divided into two, each containing its own chromosomes.

Step 4: Haploid cells are created. These can combine to form diploid cells. Their combinations can cause for the genetic variation because their will be different mixtures of traits from the genes.

- 3. a. Change in DNA will not cause a big effect on the organism.
- b.
- c. The region is damaged.
- d. DNA transcription is in reverse order.
- e. A part of the DNA is interchanged or moved to another part.

4. a. The morning glory opens up at sunrise. This is for saving up energy during the night.

b. The kangaroo stands on its two feet to be able to see predators clearly.

• It carries its offspring in a belly pouch to ensure the offspring's safety.

c. The sea nettle's movements allow food to easily enter its body.

• It lives in water, where O_2 is more abundant.

d. It has antlers for attacking other organisms. It can also protect itself.

e. The luna moth is small, so that it can easily hide itself.

f. The blue-footed booby has wings for flying, making it easier to see its prey.

• It has a long beak to easily catch its prey.

5. a. yes

b. $2A:2a$, $2H:2h$

c. No, the allele ratios do not change. There is one dominant for one recessive allele. It is the same for the others.

d.

6. a). not genetically inherited
lack of body part
b) having fever
c)

genetically inherited
blue color of eyes
cancer

7:



GALAPAGOS: BEYOND DARWIN

Synopsis: The evolution of animals in the Galapagos Islands is explored

What did you find INTERESTING?

The turtles in the Galapagos Islands were interesting. They are slow-paced because no bigger carnivores are after them. They have no competition for food. It amazes me how ^{certain} species of animals can survive without needing to run for their lives.

What did you find SIGNIFICANT?

The adaptations of animals in the Galapagos Islands is significant for me. These allow the different species to survive and to be more fit for the environment. From land iguanas evolved marine iguanas. Finches developed woodpecker ^{like} beaks. Different animals have different characteristics and ways of survival.

What did you AGREE WITH?

Humans have a great impact on the evolution of animals. Humans are said to be the most intelligent of the animals and are found at the top of the food chains. Certain species of animals are either extinct or endangered because they were hunted for food, skin, gaming, and many others. Elephants in Africa, which were abundant, ~~are~~ ^{and abruptly} have a low population now. Humans have altered the ecosystem greatly, ~~that~~ ^{so} there are animals who find it ~~hard to survive~~.

What did you DISAGREE WITH?

I do not agree with the statement saying that evolution is faster or easier in a more pristine environment. Nature will force ^{different} animals to find ways to survive in an altered or damaged ecosystem. Species of animals are more abundant in pristine environments because they adapt more easily to the surroundings that they are used to. Those living in an environment that has been changed by human or natural factors have to evolve easily to be more suitable to their new surroundings.

June 17-19, 2008

Theory

- an explanation or model based on observation, experimentation, and reasoning, especially one that has been tested and confirmed as a general principle helping to explain and predict a natural phenomena. Any scientific theory must be based on a careful and rational examination of the facts. A distinction must be made between facts and theories.

Humans and apes are closest cousins.

Evolution

- the process by which today's organisms have descended with modification from ancestors that lived during the past
- process in which significant changes in the inheritable traits of a species occur over time

June 25-26, 2008

1925: Monkey Trial

- John Scopes convicted of violating a state law prohibiting instruction of evolution

1948: Public School Shift

- Supreme Court bans instruction of religion in public schools

1980s: Intelligent Design

- promote the idea that the complexity of living organisms shows life was created by an 'intelligent designer'

1996

- John Paul II proclaims that there is no conflict between Darwin's theory of evolution and Catholicism.

2000 to now

- less than half of Americans believe in evolution. Darwin is honored with a portrait on 10-pound bill

Jushey 15, 2008

Accumulating Small Change - Excerpt from Chapter 3 of the Blind Watchmaker
by Richard Dawkins

1. Are clouds capable of cumulative selection? Explain

No. In cumulative selection, each improvement is passed on to the next generation. The improvement will be used as basis for future building. Clouds can not pass their characteristics to other clouds.

2. In what way/s could the monkey / Shakespeare model be misleading?

The monkey / Shakespeare model has a definite ending or result. In reality, there is no definite characteristic to be achieved.

What is the importance of differentiating cumulative selection and single-step selection to me?

July 16, 2008

genes

loci

alleles

homozygous } categories of genotypes
heterozygous }

genome - totality of genes

→ can be similar but not identical

genotype - ^{genetic} physical constitution

phenotype - physical makeup

gene pool - collection of genes or alleles

allele frequency

Evolution - Population

Hardy - Weinberg Principle
of Genetic Equilibrium

Hardy - Weinberg Principle of Genetic Equilibrium

1. population is large
2. mating opportunities are equal
3. no mutations occur
↳ changes in DNA
4. no migrations occur
5. no natural selection occurs

→ all organisms have equal chances of reproductive success

dominant
↙
p + q = 1
↘ recessive

$$p^2 + 2pq + q^2 = 1$$