

S U M M A R I E S

INVESTIGATION 1: Extracting DNA from a Cell

In Investigation One, you extracted DNA from onion cells. During this Investigation, you:

1. used a mortar and pestle to “break open” the onion cells.
2. filtered the ground onion mixture through a coffee filter.
3. used rubbing alcohol to separate the DNA from the ground onion mixture.

Through these experiments, you concluded that:

1. DNA is located in the nucleus of a cell.
2. one individual strand of DNA cannot be seen by the naked eye.
3. billions of strands of DNA appear as clumps of long, white strings.

INVESTIGATION 2: The Inheritance of Traits

In Investigation Two, you explored the inheritance of traits. During this Investigation, you:

1. used a model to examine the inheritance of dominant and recessive alleles.
2. used a model to cross two dominant alleles with two recessive alleles.
3. used a model to cross a dominant and recessive allele with a second dominant and recessive allele.

Through these experiments, you concluded that:

1. the inheritance of alleles result in the expression of a trait.
2. a dominant allele hides the expression of a recessive trait.
3. the inheritance of two dominant alleles result in the expression of a dominant trait.
4. the inheritance of two recessive alleles result in the expression of a recessive trait.
5. the inheritance of one dominant allele and one recessive allele result in the expression of a dominant trait.

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INVESTIGATION 3: Incomplete Dominance

In Investigation Three, you discovered the inheritance of traits through incomplete dominance. During this Investigation, you:

1. examined fourteen traits found on the human face.
2. randomly selected which allele was inherited from each parent.
3. used the selected alleles to draw a picture of a human face.

Through these experiments, you concluded that:

1. some traits on the human face display incomplete dominance.
2. the combination of alleles may result in a trait that falls between two variations of a trait .
3. there is a high level of biologic variation found in traits of the human face.
4. each human face is unique due to biologic variation of traits.

INVESTIGATION 4: Deciphering the Genetic Code

In Investigation Four, you explored the genetic code. During this Investigation, you:

1. constructed a model of a protein using “RNA” instructions.
2. tested whether the protein model could perform its function.
3. decoded a sequence of nucleotides using a key.
4. located mutations in a sequence of nucleotides.

Through these experiments, you concluded that:

1. a cell can decode genetic information to create proteins.
2. a protein carries out all of the functions of a cell.
3. a mutation, or mistake, in a sequence of nucleotides may change the translation of the sequence.
4. a mutation will not always change whether a sequence of nucleotides can be read by a cell.

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INVESTIGATION 5: Genes and Natural Selection

In Investigation Five, you explored natural selection. During this Investigation, you:

1. used a model to test the affect of natural selection on a population of beetles.
2. placed red and green beetles on a green leaf.
3. acted as a hungry bird and ate as many beetles as you could in 15 seconds.
4. monitored the population of beetles before and after eating for a three year time period.
5. modeled reproduction of surviving beetles for a three year time period.

Through these experiments, you concluded that:

1. green beetles survive better than red beetles.
2. the ability of the beetles to camouflage is an advantageous trait in this environment.
3. the green, dominant trait is inherited more often than the red, recessive trait.