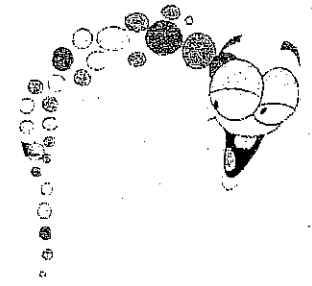


DNA and RNA FactSheet

NOTES:



History of the Discovery of DNA

ERICK GRIFFITH (1928)

1. Studied way in which _____ cause pneumonia and recognized process of _____
2. Showed through experiments that _____ could be transformed into another.
3. Hypothesized that there was a _____ involved.

AVERY (1944)

1. Repeated _____ experiments and identified _____ as the transforming factor
2. _____-stores and transmits _____ from one generation to another.

HERSHEY-CHASE (1952)

Experiments with _____
confirmed that _____

ROSALIND FRANKLIN and MAURICE WILKINS (1950's)

1. Studied _____ by using a purified DNA sample and _____ pictures of molecule.
2. Found it was a _____

ERWIN CHARGAFF (early 1950's)

1. Observed that in any DNA sample, the number of _____ molecules was equal to the number of _____; same for _____
2. Developed _____

WATSON-CRICK (1953)

1. Tried to build _____
sed _____ pictures to develop the _____

- 3. _____ model explained much about DNA structure, including _____
- 4. Received _____ along with _____
(Franklin didn't—why? _____)

B. The Structure of DNA

- 1. DNA made of _____, the basic unit of DNA

Nucleotide is made of three parts:

- a. _____
- b. _____
- c. _____
- _____ - Purines
- _____ - Pyrimidines

- 2. _____ are the "backbone" of DNA
- 3. Two _____ strands of _____ groups with pairs of _____ bases linking the two strands together with _____ forming a double helix.

WHY WEAK BONDS? _____

- 4. Nitrogen Base Pairing 'Rulz':
_____ (one purine/ pyrimidine)
_____ (one purine/ pyrimidine)
- 5. DNA strands are _____ because of base pairing rules. What does complementary mean???
- 6. Nitrogen bases are always attached to _____

C. DNA Replication

- 1. A Perfect Copy

When a cell divides, each daughter cell receives a complete set of chromosomes. This means that each new cell has a complete set of the DNA code. Before a cell can divide, the DNA must be copied so that there are two sets ready to be distributed to the new cells.

2. Complementary strands of DNA serve as a _____ for a new strand.

DNA replication carried out by _____ which "unzip" the two strands by breaking the _____.

4. Then, appropriate _____ are inserted.
 _____ also proofread the bases to make sure of correct base pairing.

DNA G C C A T T G T A A T

D. RNA: The Other Code

1. RNA similar to DNA

- long chain made of _____
- each nucleotide consists of: _____
- _____ still backbone of RNA

RNA different from DNA

- Different type of _____
- _____
- RNA molecule is a _____ of DNA
- Nitrogen base _____ found in DNA is replaced by a similar base _____ in RNA
 ex. (_____) and (C - G)

3. Why does DNA need to transfer genetic information to RNA?

- DNA is found in the _____.
 _____ are outside the nucleus.
- DNA does not _____
- Messenger must bring genetic information from the _____ to the _____ to make _____
 Special molecule, _____ performs this task.

NOTES:

RNA - The Other Part of the Code

1. RNA - "messenger" between the _____
2. _____ - organelles outside the nucleus that make proteins from amino acids.
3. _____ - used to build and repair cells.
4. _____ - process by which one strand of DNA is copied into a _____ of mRNA in the nucleus.

DNA G C C A T T G T A A T

RNA _____

Types of RNA

1. Transfer RNA (_____)
 - a. Carries _____
 - b. _____ looped back on itself
 - c. _____ - three nucleotides on tRNA are complementary to the three on the mRNA.
 - d. Matching of _____ (mRNA) to _____ (tRNA) allows the correct amino acid to be put in place.
2. _____ RNA (rRNA)
 - a. makes up majority of _____

Protein Synthesis

1. _____ in DNA have all the information to make proteins.
2. _____ code copied into _____
3. Proteins are made of _____ which are coded from mRNA.
4. mRNA code is read in _____ form called a _____ which specifies certain amino acids using a decoder (p.201)
5. Only _____ amino acids make all life as we know it!

How can this be?

* _____ - codes for amino acid *methionine* or be an "initiator codon" and will
 always _____
 e are _____ codons which end mRNA

6. _____ -the decoding of mRNA code into an amino
 acids which when assembled together form proteins

DNA T A C T T T G T A A C T

RNA _____

Amino Acids _____

Mutations

1. Mutations can occur on individual _____ by way of gene
 mutations.

a. Base sequence gets _____ and may cause _____
 _____ of genes

2. Mutations can also occur with _____ chromosomes.

