

Name: \_\_\_\_\_

Period: \_\_\_\_\_

## Biotechnology Notes

**Biotechnology** - The manipulation of \_\_\_\_\_ to achieve a goal

### Applications of Biotechnology:

1. **Biofuels** - A type of energy derived from renewable \_\_\_\_\_ or organic matter.

Examples of *biofuels* include \_\_\_\_\_

2. **Genetic Engineering** - When the manipulation involves the \_\_\_\_\_

Genes are added, \_\_\_\_\_ or \_\_\_\_\_

- **Genetically Engineered Human Insulin From Bacteria**

\_\_\_\_\_ inserted into bacteria genome

\_\_\_\_\_ are able to produce human insulin

3. **Bioremediation** - Using \_\_\_\_\_ and other living things to \_\_\_\_\_ the environment

- Example: Genetically engineered \_\_\_\_\_ can be used to clean up an \_\_\_\_\_.

### 4. **Genetically Modified Organisms**

Organisms that \_\_\_\_\_

\_\_\_\_\_

\*Also called \_\_\_\_\_

#### Genetically Modified Plants

The goal is to \_\_\_\_\_

\_\_\_\_\_

#### Genetically Modified Animals

Produce beneficial \_\_\_\_\_

\_\_\_\_\_.



Trait	Advantage	Sample Product
Pest-Resistance	Less damage by insect, virus, bacteria, etc.	Corn
Herbicide-Resistance	Herbicides will kill only weeds, not crops	Cotton
Delayed Ripening	Can be shipped with less damage	Tomato
Miniature Size	Improved eating quality	Watermelon
Improved Sweetness	Better tasting	Sweet peas
Cold-Resistance	Withstands freezing and thawing	Strawberries
High Starch	Absorbs less oil when fried	Potato
Polyester Gene Added	Better fiber properties	Cotton
Growth Hormone Added	Faster growth	Salmon
Hepatitis B Virus Protein Added	May provide immunity to Hepatitis	Banana

## 5. Cloning

Organisms that \_\_\_\_\_

Cloning began in \_\_\_\_\_

\_\_\_\_\_

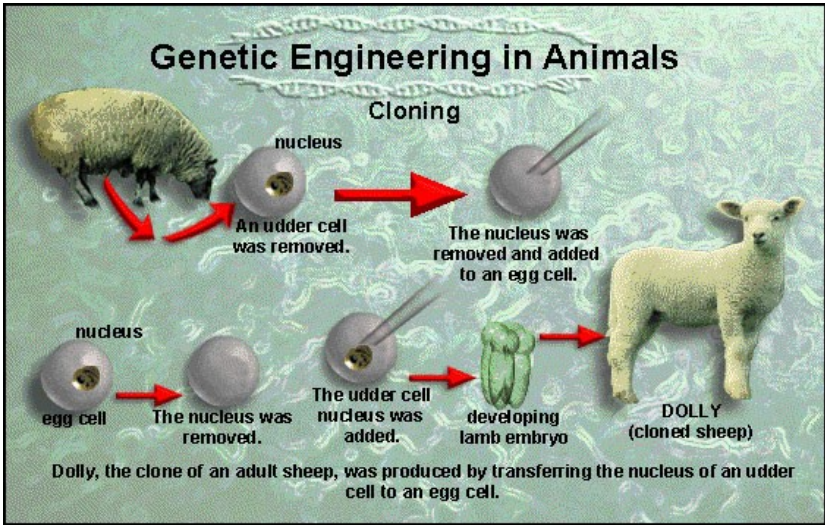
\_\_\_\_\_ - first animal cloned

from adult cell

## Biotechnology Ethics

Society’s responsibilities regarding uses of

\_\_\_\_\_



*What do you think???*

*Is it okay for us to use biotechnology anyway we want? When is it good? When is it bad?*

Pros (Good)	Cons (Bad)
1.	1.
2.	2.
3.	3.