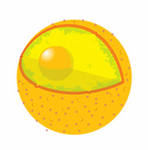
| **LESSON number 3 NUCLEUS, ITS STRUCTURAL COMPONENTS. REPRODUCTION OF CELLS** Purpose: To study the role of the nucleus as a leading component of the cell, the peculiarities of its organization in connection with the functions performed. To acquire and consolidate knowledge about the structure of the cell nucleus, the cell cycle, as well as the methods and mechanisms of cell self-reproduction, which are the basic material for understanding many processes in biology and medicine, both in health and in pathology. **Describe kernel functions** |
| --- |
|  |
|  |
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|  |
|  |

Sign the structural components of the kernel in the figure



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|  |  |
| --- | --- |
| 1. |  |
| 2. |  |
| 3. |  |
| 4. |  |
| 5. |  |
| 6. |  |
| 7. |  |
| 8. |  |
| 9. |  |

MODEL OF THE STAGES OF COMPACTING THE GENETIC MATERIAL

(draw a sketch of the stages, indicating their features)

|  |  |
| --- | --- |
| 1. |  |
| 2. |  |
| 3. |  |
| 4. |  |
| 5. |  |
| 6. |  |
| 7. |  |

STRUCTURE OF THE CHROMOSOME

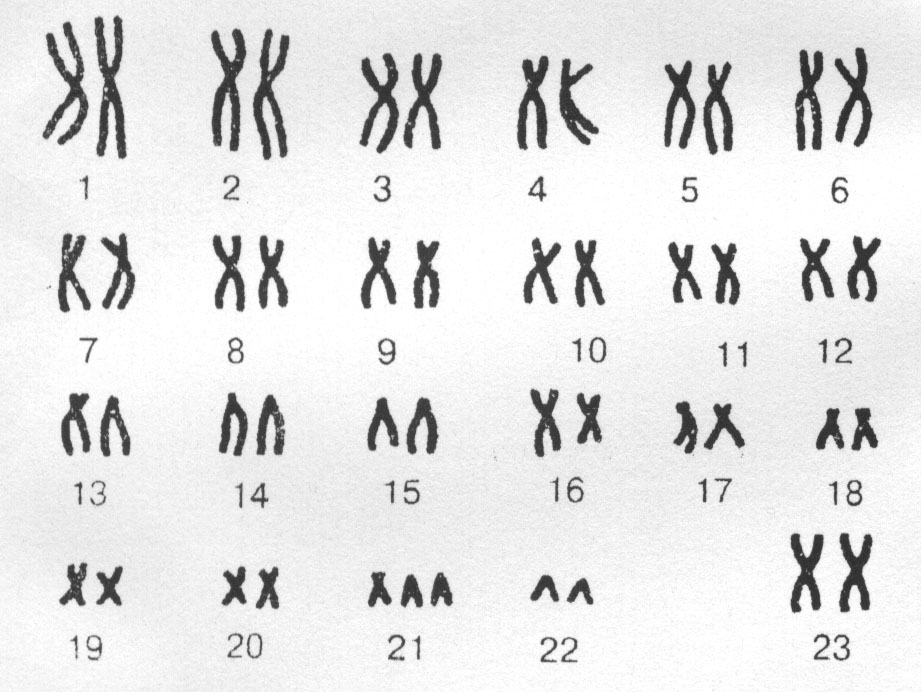
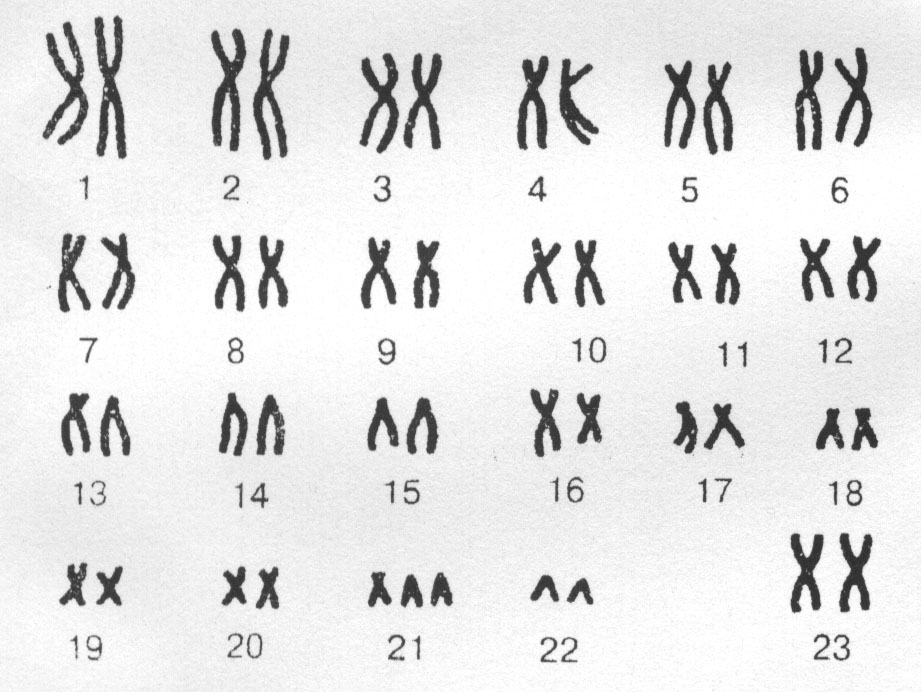
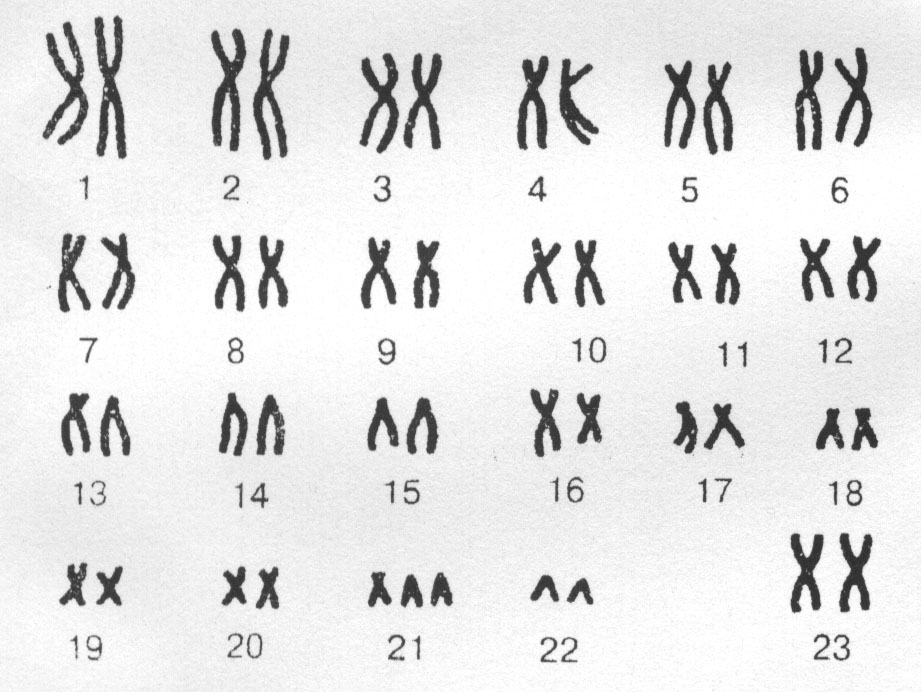
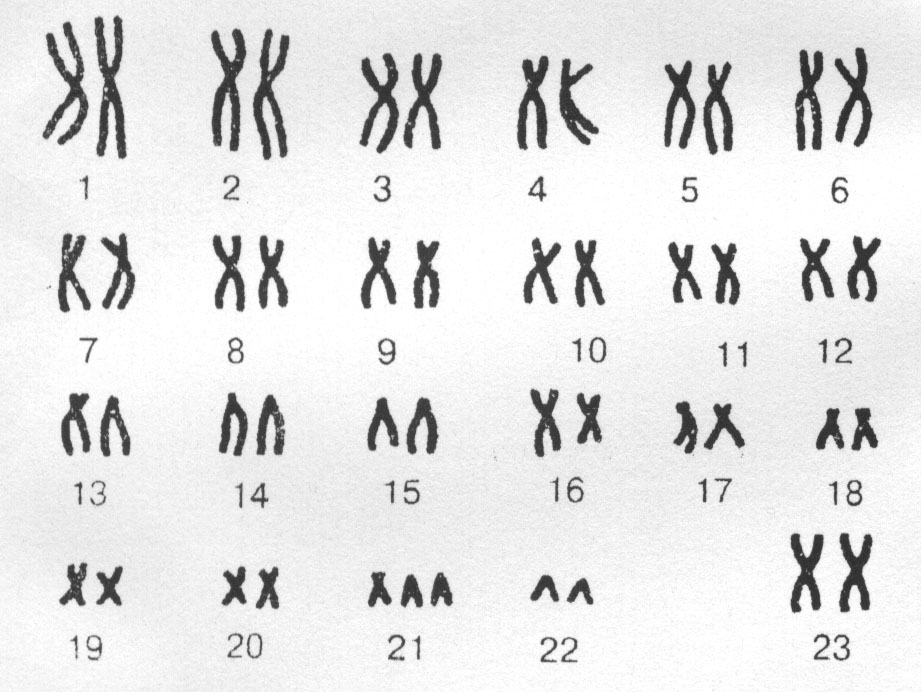
|  |  |
| --- | --- |
| 1. |  |
| 2. |  |
| 3. |  |
| 4. |  |
| 5. |  |
| 6. |  |
| 7. |  |
| 8. |  |

CHROMOSOME TYPES

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Metacentric-** |  | **Submetacentric** |  | **Acrocentric** |  | **Telocentric** |
|  | | | | | | |

CLASSIFICATION OF HUMAN CHROMOSOME BY SIZE AND LOCATION OF THE CENTROMER

|  |  |  |
| --- | --- | --- |
| Group | № chromosome pair | Characteristics of a group of chromosomes |
| A |  |  |
| B |  |  |
| C |  |  |
| D |  |  |
| E |  |  |
| F |  |  |
| G |  |  |
| Sexual chromosomes |  |  |
|  |  |



CELL CYCLE



5

2

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1

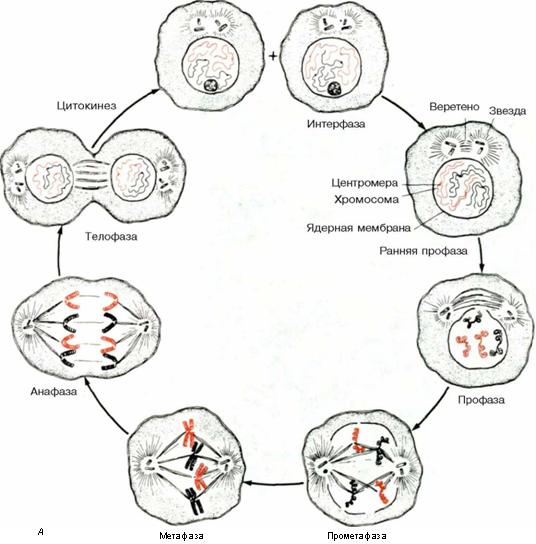
7

6

|  |  |
| --- | --- |
| 1. |  |
| 2. |  |
| 3. |  |
| 4. |  |
| 5. |  |
| 6. |  |
| 7. |  |

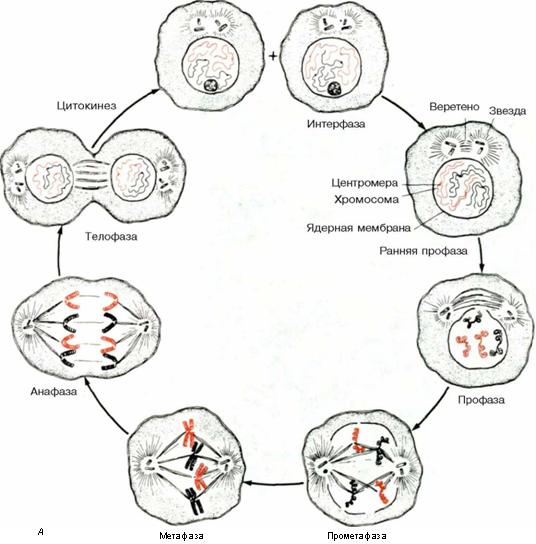
|  |  |
| --- | --- |
| Interphase |  |
|  |
|  |
| G1 |  |
|  |
|  |
| S |  |
|  |
|  |
| G2 |  |
|  |
|  |
| Mitosis |  |
|  |
|  |
| Cytokinesis |  |
|  |
|  |
| Kariokinez |  |
|  |
|  |

MITOSIS IN ANIMAL CELL



1

2



3

4

5

1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

АМИТОЗ В КЛЕТКАХ МОЧЕВОГО ПУЗЫРЯ МЫШИ

**MITOSIS differences**

|  |  |  |  |
| --- | --- | --- | --- |
| **Plant cell** | | **Animal cell** | |
| Kariokinez | | | |
|  |  | |  |
|  |  | |  |
|  |  | |  |
| Cytokinesis | | | |
|  |  | |  |
|  |  | |  |
|  |  | |  |

**PRACTICAL PART**

**Work No. 1**

**Interphase nuclei and metaphase plates in the culture of human peripheral blood lymphocytes**

|  |  |
| --- | --- |
| 1. | Metaphase chromosomes |
| 2. | Interphase nucleus |

**Work number 2  
Polytene chromosomes of Drosophila and Chironomus**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Work number 3  
Mitosis in onion root cells**

Find and determine the phases of mitosis in the division zone at the apex of the onion root.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Prophase** |  | **Metaphase** |  | **Anaphase** |  | **Telophase** |

**Work No. 4  
Mitosis in the marginal zone of the liver.**

Увеличение \_\_\_×\_\_\_

|  |  |
| --- | --- |
| 1. |  |
| 2. |  |
| 3. |  |
| 4. |  |
| 5. |  |

Conduct a comparative analysis (in the table below) the process of mitosis observed on permanent microslides in cells a) the division zone of the onion root and b) in the marginal zone of the liver

|  |  |  |  |
| --- | --- | --- | --- |
| № п/п | Compared indicators | Onion root dividing area | The marginal zone of the liver |
| 1. |  |  |  |
| 2. |  |  |  |
| 3. |  |  |  |
| 4. |  |  |  |
| 5. |  |  |  |

**Work number 5  
Amitosis in mouse bladder cells.**

Увеличение \_\_\_×\_\_\_

|  |  |
| --- | --- |
| 1. |  |
| 2. |  |
| 3. |  |

Specify the difference between this method of cell division - amitosis or "direct cell division". What are its advantages and disadvantages? What fabrics is it typical for?

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