

5. The mitotic cell cycle

Starter Quiz · 课前小测

A-Level Biology

Name: _____ Score: _____

1. A chromosome is:

- ☐ a long DNA molecule wound around proteins called histones
- ☐ a single protein
- ☐ a type of carbohydrate
- ☐ a membrane

2. The two daughter cells produced by mitosis are:

- ☐ genetically identical to each other and to the parent cell
- ☐ genetically different from each other
- ☐ always specialised
- ☐ half the size forever

3. In prophase:

- ☐ chromosomes condense, the nuclear envelope breaks down, and a spindle forms
- ☐ chromosomes line up at the equator
- ☐ sister chromatids are pulled to the poles
- ☐ two new nuclei form

4. After replication, a chromosome is two identical sister _____ joined at the centromere.

5. Mitosis produces genetically identical daughter cells, which is why it is used for growth and repair.

- ☐ True ☐ False

6. In _____, the chromosomes line up along the equator of the cell.

7. During which phase of interphase is the DNA copied?

- ☐ the S phase
- ☐ the G₁ phase
- ☐ the G₂ phase
- ☐ cytokinesis

8. Select **all** the roles of mitosis.

- ☐ growth
- ☐ repair and replacement of cells
- ☐ asexual reproduction
- ☐ producing genetically varied gametes
- ☐ making ATP

Tick every correct option.

9. Anaphase is the stage where:

- ☐ the centromeres split and sister chromatids are pulled to opposite poles
- ☐ the spindle first forms
- ☐ the nuclear envelope breaks down
- ☐ the cytoplasm divides

10. Interphase (G₁, S, G₂) is the longest part of the cell cycle.

- ☐ True ☐ False

A-Level Biology**1. a long DNA molecule wound around proteins called histones**

Chromosomes are DNA wound tightly around histone proteins, packing a huge length into the nucleus.

2. genetically identical to each other and to the parent cell

Mitosis produces genetically identical cells — they carry exactly the same genes as the parent.

3. chromosomes condense, the nuclear envelope breaks down, and a spindle forms

Prophase: chromosomes coil up and become visible, the nuclear envelope breaks down, and the spindle forms.

4. chromatids

Replication makes an identical copy; the two sister chromatids stay joined at the centromere until anaphase.

5. True

Identical copies are exactly what growth, repair and asexual reproduction need.

6. metaphase

In metaphase the chromosomes line up at the cell's equator and spindle fibres attach to each centromere.

7. the S phase

DNA replication happens in the S (synthesis) phase, between G₁ and G₂.

8. growth; repair and replacement of cells; asexual reproduction

Mitosis gives identical cells for growth, repair/replacement and asexual reproduction. Varied gametes come from meiosis; ATP comes from respiration.

9. the centromeres split and sister chromatids are pulled to opposite poles

In anaphase the centromeres split and the spindle pulls the sister chromatids apart to the poles.

10. True

Interphase takes up most of the cycle; mitosis and cytokinesis are comparatively short.