

Meiosis in motion review

Sing the Meiosis square dance with the class while your teacher directs your movement with your partners as you perform meiosis with your group.

*Prophase I is where we start
Link your arms to make your mark
Homologous pairs is what we are
Synapsis make our genes move far*

*Make a match with a new pair
A tetrad square is in the air
Swing your partners round and round
Trading genes, crossover has been found*

*Metaphase I has now begun
Promenade to the center for some fun
Independent assortment makes its mark
No one knows which way to part*

*Drop your arms; now you're free
Two new partners I do see
Move to the pole
Anaphase I is the goal*

*Telophase I is next to come
Cytokinesis increases the sum
Haploid cells you have become
2 new daughter cells—but we're not done!*

*Prophase II you're on your own
Spindles appear in your zone*

*Promenade to the center for some fun
Single file because you're number one
Metaphase II is now complete
It is time to stomp your feet (stomp,
stomp, stomp)*

*Have no fear
Anaphase II is near
Split in half so it may appear
This is the final frontier*

*Telophase II comes out of the blue
Cytokines splits us in two
Genetically unique
4 haploid cells with great technique*

Review questions

Answer the following review questions and produce a drawing of the cell cycle stage being described to the right of each answer.

1. If a diploid cell starts meiosis with 16 chromosomes, how many chromosomes are present during Prophase I? What significant event occurs with these chromosomes during Prophase I?
2. In a cell with 8 chromosomes, how are the chromosomes arranged during Metaphase I? How does this arrangement differ from mitosis?
3. In a cell with 10 chromosomes, how many chromosomes move to each pole during Anaphase I? What is the significance of this separation for genetic diversity?
4. If a cell with 22 chromosomes undergoes Telophase I and Cytokinesis, how many chromosomes does each resulting cell have? Are the resulting cells diploid or haploid? Explain why.
5. In the cells resulting from Telophase I with 6 chromosomes each, what is the state of the chromosomes during Prophase II? Do homologous chromosomes pair up again in Prophase II? Explain.
6. How are the chromosomes arranged during Metaphase II in a cell that started Meiosis II with 36 chromosomes? How does this arrangement ensure proper division in the next phase?
7. In a cell with 28 chromosomes at the start of Metaphase II, how many chromatids are pulled to each pole during Anaphase II? What is the result of this separation?
8. If a cell with 48 chromosomes undergoes Anaphase II and each chromatid moves to a different pole, how many chromosomes are in each of the four resulting cells after Telophase II and Cytokinesis? How do these chromosome numbers compare to the original cell before meiosis began?