

Cornell Guided Notes

Principles of Biomedical Technology (Principles of Biomedical Science) | 2026-10-23

Name

Period

Date

Lesson

Lesson focus

Karyotype case analysis

Key words and questions

Prepared details and student notes

Essential question
What is today's target?

Students individually arrange and interpret a karyotype to identify a chromosomal abnormality in a patient case. Big idea: A karyotype is a diagnostic tool: the accuracy of the result depends on following a precise SOP and recognizing sources of error.

My notes, examples, and questions

Key words
What vocabulary unlocks the lesson?

- karyotype
- inheritance
- genotype
- phenotype
- carrier
- pedigree
- genetic risk

My notes, examples, and questions

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Key words and questions

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Must-know ideas
What should I understand by the end?

- Chromosomes are paired by homologs using size, banding pattern, and centromere position.
- An extra or missing chromosome detected in a karyotype indicates a numerical abnormality.
- Procedural errors in cutting, pairing, or image quality can produce a false reading.

My notes, examples, and questions

Process notes
What happens during class?

- 0-5 min: Review SOP posted at station: cutting, pairing, and mounting sequence.
- 5-10 min: Identify and record independent variable (chromosome images given) and dependent variable (completed karyotype reading).
- 10-50 min: Individual karyotype construction: sort 22 autosome pairs plus sex chromosomes; mount on template.
- 50-65 min: Compare to reference karyotype; identify and name the chromosomal abnormality.
- 65-75 min: Record one source of procedural error that could affect the diagnosis.
- 75-80 min: Submit completed karyotype and written abnormality statement before leaving.

My notes, examples, and questions

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Cornell Notes - Continued

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Steps and evidence What do I do and turn in?

- Record the SOP for cutting, pairing, and ordering chromosome images.
- Identify the independent and dependent variables in this diagnostic procedure.
- Sort chromosomes by size and centromere position into 22 pairs plus sex chromosomes.
- Compare the completed karyotype to a reference to detect any extra or missing chromosome.
- Name the abnormality and note one source of error that could affect the reading.

Evidence: Lab report - Completed karyotype template with labeled chromosome pairs, identified abnormality, and one stated procedural limitation.

My notes, examples, and questions

Checks for understanding How do I know I got it?

- Produce a correctly ordered karyotype following the lab SOP.
- Identify the chromosomal abnormality and state one procedural limitation.

My notes, examples, and questions

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Key words and questions

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Lab or safety notes
What must I handle carefully?

Safety:

- Handle scissors with blade pointing down when moving.
- Keep workspace clear of loose scraps to avoid contaminating another student's karyotype.
- Wash hands after handling printed lab materials.

Supplies:

- Printed chromosome image sheet (one per student)
- Scissors
- Glue stick or tape
- Blank karyotype template sheet
- Colored pencil or pen for labeling
- Reference karyotype chart (posted at station)

My notes, examples, and questions

Summary

Today's lesson focused on Karyotype case analysis. The main target was: Students individually arrange and interpret a karyotype to identify a chromosomal abnormality in a patient case. The evidence of learning is Lab report: Completed karyotype template with labeled chromosome pairs, identified abnormality, and one stated procedural limitation.. In my own words, the most important idea from today is:

My summary

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My final question or connection