

# Cornell Guided Notes

Biotechnology for Health (Biomedical Innovations) | 2027-04-23

Name

Period

Date

Lesson

Lesson focus

Gel map

Key words and questions

Prepared details and student notes

**Essential question**  
**What is today's target?**

Interpret your gel by estimating fragment sizes and confirming the plasmid identity. Big idea: A gel map converts band position into fragment size and confirms whether a construct is correct.

**My notes, examples, and questions**

**Key words**  
**What vocabulary unlocks the lesson?**

- transformation
- selection
- colony
- digest
- gel electrophoresis
- DNA ladder

**My notes, examples, and questions**

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## Cornell Notes - Continued

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

- Migration distance is inversely related to fragment size on an agarose gel.
- A log-linear standard curve built from the ladder lets you interpolate unknown fragment sizes.
- If estimated fragment sizes match the predicted restriction map, the plasmid identity is confirmed.

**My notes, examples, and questions**

**Process notes**  
**What happens during class?**

- 0-5 min: Warm-up: why does a smaller DNA fragment migrate farther in an agarose gel?
- 5-20 min: Measure migration distances for every ladder band and record in a table
- 20-40 min: Build a standard curve (log fragment size vs. migration distance)
- 40-55 min: Interpolate estimated sizes for all sample bands using the curve
- 55-70 min: Compare estimates to the predicted restriction map; write your conclusion
- 70-80 min: Exit ticket: state whether your plasmid matches the expected construct and why

**My notes, examples, and questions**

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#### Steps and evidence What do I do and turn in?

- Measure the migration distance of the DNA ladder bands.
- Build a standard curve relating distance to fragment size.
- Estimate the size of each sample band from the curve.
- Compare estimated sizes to the expected restriction map.
- Conclude whether the plasmid matches the predicted construct.

Evidence: Data table - Gel analysis table with ladder band migration distances, standard curve (log fragment size vs. distance), estimated sample fragment sizes, predicted restriction map sizes, and a written conclusion on plasmid identity.

#### My notes, examples, and questions

#### Checks for understanding How do I know I got it?

- You estimated sample fragment sizes from a ladder.
- You concluded whether the gel matches the expected map.

#### My notes, examples, and questions

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**Lab or safety notes**  
**What must I handle carefully?**

Supplies:

- Provided transformation plate images
- Gel electrophoresis chamber and power supply
- Agarose gel
- DNA ladder standard
- Restriction digest samples
- Micropipettes and tips
- Gel staining and imaging setup

**My notes, examples, and questions**

## Summary

Today's lesson focused on Gel map. The main target was: Interpret your gel by estimating fragment sizes and confirming the plasmid identity. The evidence of learning is Data table: Gel analysis table with ladder band migration distances, standard curve (log fragment size vs. distance), estimated sample fragment sizes, predicted restriction map sizes, and a written conclusion on plasmid identity.. In my own words, the most important idea from today is:

**My summary**

## My final question or connection