Lesson 10: The First Life
PLATING BACTERIA

SAFETY REMINDERS Read before beginning.

Wash hands before and after. Wear gloves. Never open a plate after it has been sealed. Do not eat or drink during the activity. If any plate shows black or dark green growth, seal it immediately and dispose of it without opening.

INVESTIGATION QUESTION

What surfaces in your environment harbor the most bacterial growth, and does the result match your predictions?

HYPOTHESIS Hint: try writing it as "If _____, then _____, because _____."

SURFACES I AM TESTING

1. _____ 2. _____

3. _____ 4. _____

WHY I CHOSE THESE SURFACES

RESULTS TABLE Do not open plates. Observe through the lid only.

Surface Swabbed	Number of Colonies (estimate)	Colony Color(s)	Colony Size	Other Observations
Control (air exposed)				

ANALYSIS Which surface had the most growth? Which had the least? Did anything surprise you?

CONCLUSION Did your results support your hypothesis? Explain using specific evidence from your results table.

CONNECT IT

Each colony on your plate started as a single bacterium that divided over and over. For roughly 2 billion years, all life on Earth was single-celled. What does your petri dish tell you about how successful that kind of life is?

THINK FURTHER

Your results show what grew on nutrient agar under these conditions. Not all bacteria can grow on this type of agar. What does that mean about whether your results give you the complete picture of what was on each surface?

INVESTIGATION QUESTION
What evidence can we observe that confirms yeast is a living organism?

HYPOTHESIS

Hint: try writing it as "If _____, then _____, because _____."

MATERIALS

active dry yeast, warm water, sugar, clear glass, optional second cup with cool water

PROCEDURE

Summarize what you did in your own words.

Observation Table

Time	Warm Water Cup	Cool Water Cup (if used)	Notes
Start			
5 minutes			
10 minutes			
15 minutes			

ANALYSIS

Which characteristics of life did you observe in the yeast? List them and describe the evidence you saw for each.

CONCLUSION

Was your hypothesis correct? How does observing yeast help us understand what early life on Earth may have looked like?

CONNECT IT

Extremophiles are organisms that live in extreme environments like boiling hot springs or highly acidic water. Look up one example. What does it tell us about where life might exist on other planets?

THINK FURTHER

For over 2 billion years, all life on Earth was single-celled. What conditions might have prevented multicellular life from appearing sooner?

ADDITIONAL NOTES