

— THE NEW SCIENCE REGENTS

Life Science: Biology.

Professional Development for Teachers

What changed, what matters, and how to teach it.



EdBoosters™

COMMON QUESTION

“
Did the curriculum **really**
change ?

SHORT ANSWER

Yes — fundamentally.

WHAT'S NEW

- New standards (SEP + DCI + CCC integrated)
- New phenomena-based pedagogy
- New required investigations
- New cluster-based exam format



A NOTE TO TEACHERS

Change is hard. You've taught through it before. **You've got this.**

One step at a time

One unit. One Regents skill. You'll get there.

Trust your craft

Good teaching habits transfer. The new course needs them more, not less.

You're not alone

Boosters, NYSED resources, and your colleagues are walking this with you.

— WHAT CHANGED

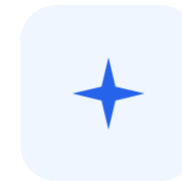
Four **key** differences.

**01**

CONTENT

Core information

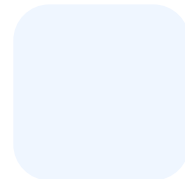
New curriculum, new training, new instructional materials. The old curriculum cannot simply continue.

**02**

PEDAGOGY

Phenomena-based learning

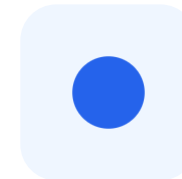
Lessons begin with observable events students try to explain. Concepts emerge through inquiry, not lecture.

**03**

LABS

Lab investigations

Three required investigations replace prior state-lab format. Students lead experimental design.

**04**

EXAM

Testing style

Cluster-based storylines around phenomena. Multiple stimuli per cluster. MC and constructed response.

COMMON QUESTION



Can I use my old resources ?

RETIRE**Old curriculum & state labs**

LE topic sequence and Part D state labs no longer match the standards or the exam.

REPURPOSE**Strong phenomena, data, readings**

Recast around a question. Add a model or graph. Keep what helps students explain.

REPLACE**With NYSED-aligned materials**

Required investigations, cluster-style assessments, and three-dimensional lessons.

FOUNDATION

The new course is **three-dimensional**.

Every strong lesson should make all three dimensions visible.

SEP

How scientists work

DCI

Core biology ideas

CCC

Thinking lenses

EXAMPLE

Sweating cools the body

Plan an investigation · Use homeostasis concepts · Explain cause & effect



— DIMENSION 1

DCI = the biology idea students must understand deeply .

Disciplinary Core Ideas.

LS1 — From Molecules to Organisms: Structures and Processes

LS2 — Ecosystems: Interactions, Energy, and Dynamics

LS3 — Heredity: Inheritance and Variation of Traits

LS4 — Biological Evolution: Unity and Diversity

NEW EXPECTATION

Students **use** core biology ideas to explain systems, mechanisms, and changes in living things.

TEACHER MOVE

Teach **fewer ideas more powerfully**: definition → mechanism → evidence → result.

— DIMENSION 2

SEP = what students do with the science.

Science and Engineering Practices — the habits of scientists and engineers.

**Ask / Plan**

questions, variables, investigation design

**Model**

draw, use, revise, and explain models

**Analyze**

read graphs, tables, patterns, outliers

**Explain / Argue**

claim + evidence + reasoning

TEACHING SHIFT

"Tell me and I forget. Teach me and I remember. Involve me and I learn." — Benjamin Franklin



— DIMENSION 3

CCC = the thinking lens that organizes the lesson.

Crosscutting Concepts. Lenses students use to make sense of science.

LENS 01

Cause & Effect

"What caused this change?"

LENS 02

Systems

"What parts interact?"

LENS 03

Structure & Function

"How does shape help the job?"

LENS 04

Stability & Change

"What stays stable? What changes?"

LENS 05

Energy & Matter

"Where does energy/matter go?"

LENS 06

Patterns

"What trend do we notice?"



THE SHIFT

Living Environment vs. Life Science: Biology.

FEATURE	LIVING ENVIRONMENT	LIFE SCIENCE: BIOLOGY
Standards logic	Content standards with inquiry skills added alongside	Performance Expectations integrate SEP + DCI + CCC
Instructional feel	Topic-by-topic coverage	Phenomena-based sense-making
Labs	Traditional state labs / Part D skills	Three required Investigations embedded in instruction
Assessment	More isolated questions	Cluster-based storylines with multiple stimuli
Student success	Recall + recognize	Analyze, model, explain, argue from evidence

FRAME OF MIND

The teacher mindset shift.

Move from coverage to coached sense-making — three habits to build into every unit.

01 **Start with a phenomenon**

Use something observable, puzzling, and biological. Students should want to explain it.

02 **Make thinking public**

Students sketch models, name patterns, argue from data, and revise ideas.

03 **Teach terms after need**

Vocabulary sticks better after students have a reason to use it.

INVESTIGATIONS

Labs are not an **add-on** anymore.

Students still need 1,200 minutes of lab experience with documented reports — plus three NYSED Investigations required by the new course.

1,200

MINUTES OF LAB EXPERIENCE

WHAT CHANGES IN LAB CULTURE

Students design variables, collect and interpret data, and explain what the data means. The lab report becomes **evidence of thinking** — not paperwork after a recipe.

01

Balancing Act

feedback + homeostasis

02

Mystery of Lactose Intolerance

gene expression + variation

03

For the Birds

populations + limiting factors + solutions

Plan labs early. They shape how students think on the written Regents.



ASSESSMENT

The exam now tests a **storyline**.

STEP 01

Phenomenon

A real-world situation

STEP 02

Stimuli

passage · graph · table · diagram · photo

STEP 03

Questions

MC + constructed response

STEP 04

Goal

explain · model · design solution

FAST FACTS

9–11

CLUSTERS

45–55

QUESTIONS

60/40

MC / CR

3 hrs

LENGTH

INSIDE ONE CLUSTER

A cluster opens with a **theme + intro questions**, then layers **multiple stimuli** (passages, graphs, diagrams, photos) and **5+ MC and CR questions**. Answers can come from **any stimulus** in the cluster — students must hunt across the storyline.

Reference exam: nysedregents.org/life_science_biology/625/lbiology-62025-exam.pdf



INSTRUCTION

A lesson **rhythm** that fits the new course .

- 01 Notice** Show the phenomenon. Students observe, wonder, and predict.
- 02 Investigate** Students gather data, use a model, or compare evidence.
- 03 Name the science** Now introduce the DCI vocabulary and mechanism.
- 04 Explain** Students write or revise a claim-evidence-reasoning response.
- 05 Transfer** Give a new, related situation and ask them to apply the same idea.



COURSE STRUCTURE

The content map.

Life Science: Biology is organized around major topics — but they are tested as connected systems.



01

Structure & Function

cells · DNA · homeostasis



02

Matter & Energy

photosynthesis · respiration · cycles



03

Ecosystems

populations · biodiversity · human impact



04

Inheritance & Variation

genes · mutations · heredity



05

Natural Selection

evidence · adaptation · extinction



06

Earth Systems

climate · sustainability · life-Earth links



07

Engineering

design solutions · constraints · models

KEY IDEA

Don't teach these as isolated chapters. Keep asking:
"How does this topic help explain a real system?"

CLASS STRUCTURE

Unit Coverage → Regents Skills → Cluster Walkthroughs