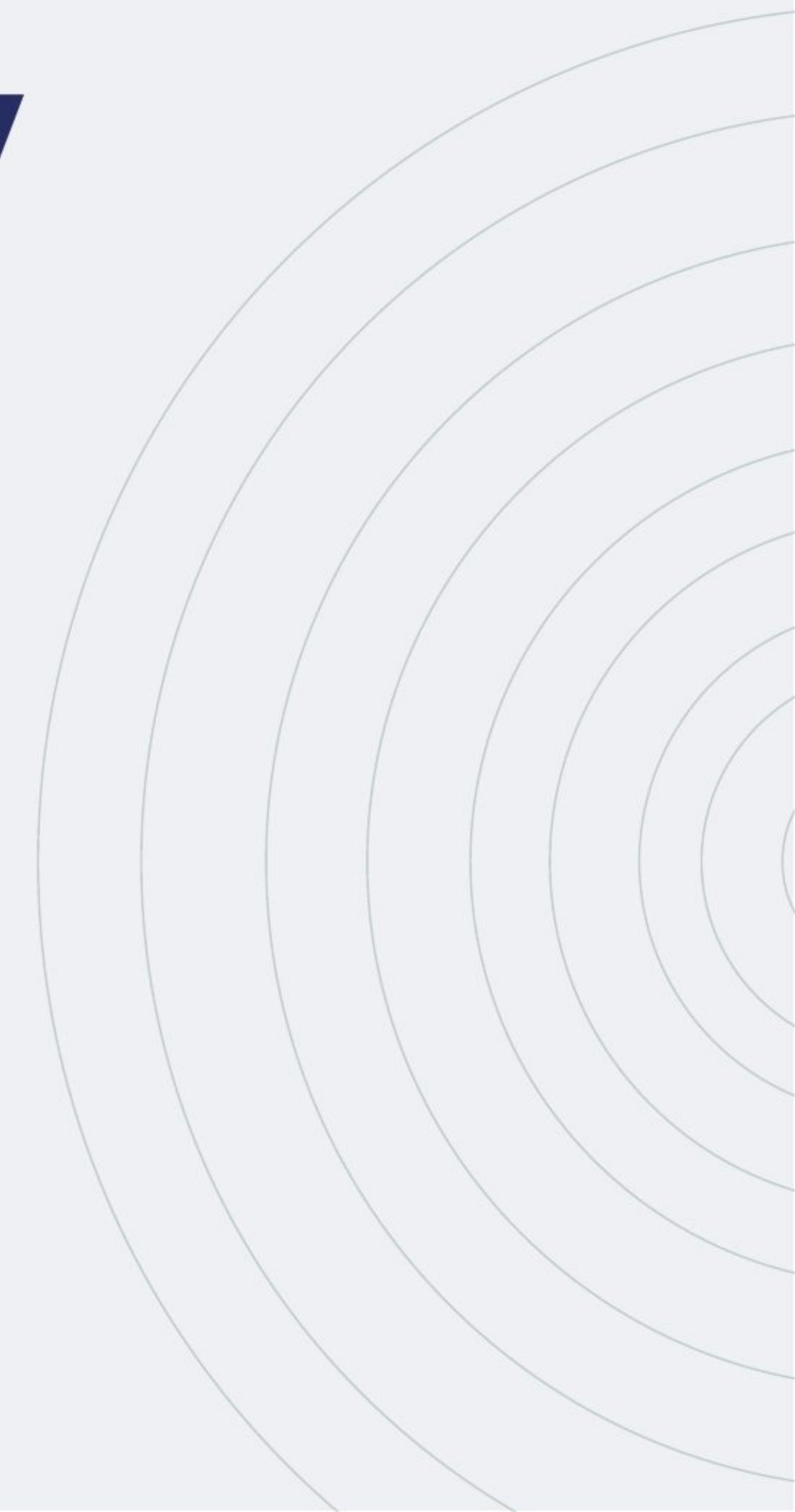
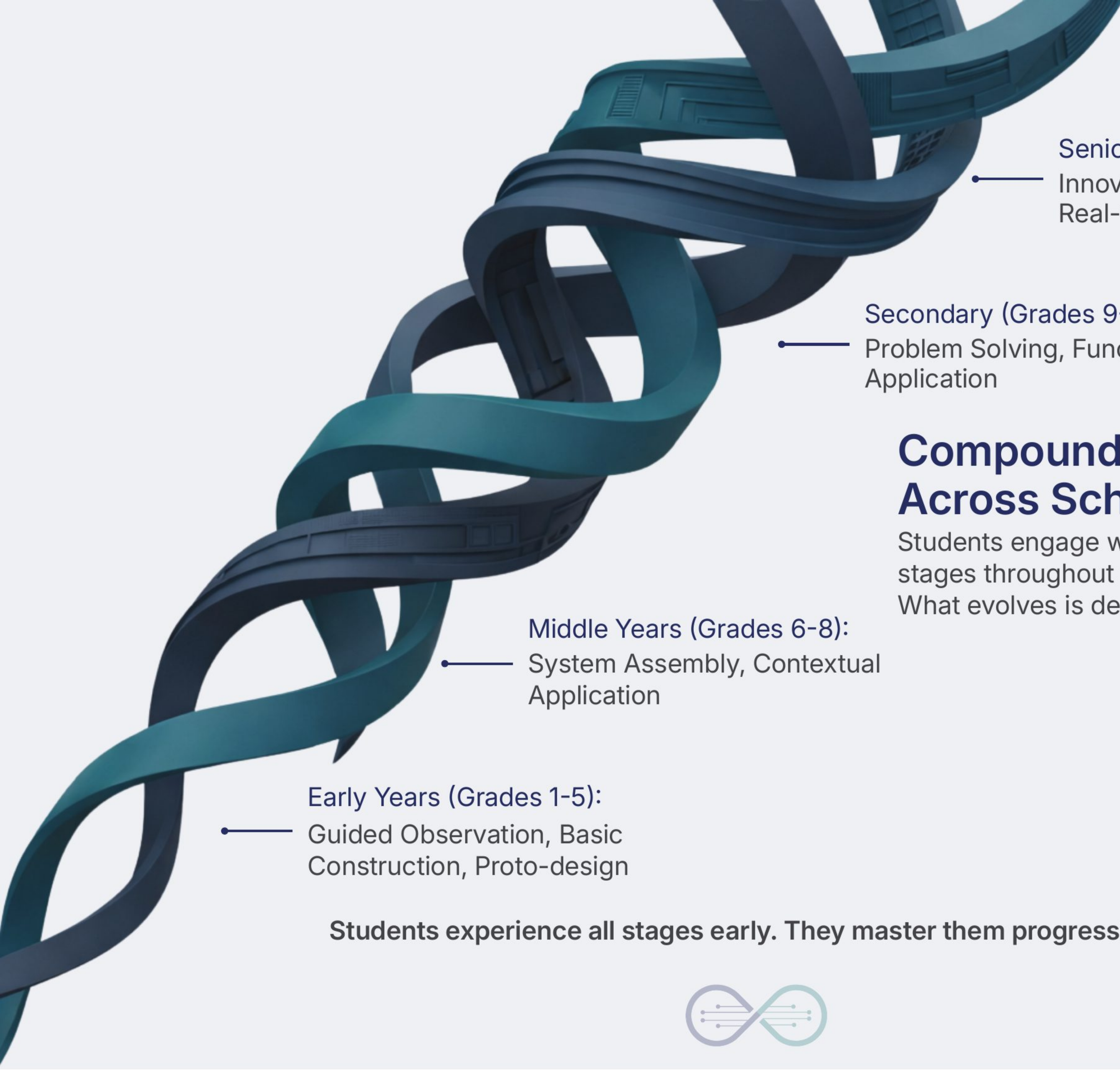




K-12 Capability Spiral





Senior Secondary (Grades 11-12):
Innovation, Systems Integration,
Real-world Projects

Secondary (Grades 9-10):
Problem Solving, Functional
Application

Compounding Capability Across Schooling

Students engage with all experiential capability stages throughout their schooling journey. What evolves is depth.

Middle Years (Grades 6-8):
System Assembly, Contextual
Application

Early Years (Grades 1-5):
Guided Observation, Basic
Construction, Proto-design

Students experience all stages early. They master them progressively.





Grades 1-5: The Foundation of Curiosity

Theme: Curiosity & Everyday Tech



Observation

Guided looking at everyday phenomena.



Construction

Simple Machines & Mechanics.



Application

Play-based learning & exploration.



Design

Asking 'Why?' and 'What if?'

Curriculum Focus

Everyday Tech • Simple Machines • Light & Sound

Students outcome: Normalizing the culture of making and breaking.



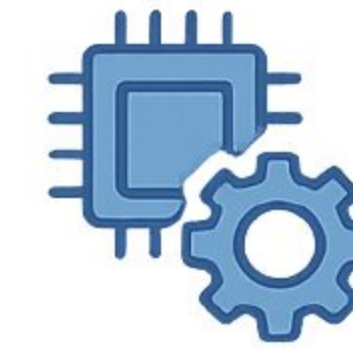
Grades 6-8: The Structure of Systems

Theme: Hands-on & Electronics



Observation

Understanding circuitry and flow.



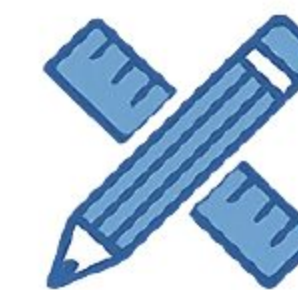
Construction

System assembly & connections.



Application

Contextual experiments & environment.



Design

Guided challenges & constraints.

Curriculum Focus: Electricity • Circuits • Environment

Student Outcome: Transitioning from observing magic to building logic.





Grades 9-10: The Rigor of Problem Solving

Theme: Problem Solving & Control Systems



Observation
Analyzing efficiency & optimization.



Construction
Independent construction.



Application
Functional problem solving



Design
Applied design thinking.

Curriculum Focus

Control Systems • Energy Efficiency • Logic

Student Outcome: Design now involves efficiency, function, and pre-engineering rigor.





Grades 11-12: The Peak of Innovation

Theme: Innovation, Automation & IoT



Observation
Identifying
real-world gaps



Construction
Systems integration
(Hardware + Software)



Application
Real-world projects



Design
Independent prototyping
















Curriculum Focus

Automation • IoT • Data Science

Student Outcome: Design now involves efficiency, function, and pre-engineering rigor.



Capability Progression Across Grade Bands

	Classes 1-5	Classes 6-8	Classes 9-10	Classes 11-12
Observation				
Construction				
Application				
Design				



The Delivery x Capability Integration Matrix

	Capability Built	Student Experience	Outcome
Explore	Observation	Curiosity & Inquiry	Problem Identification
Build	Construction	Hands-on Prototyping	Technical Fluency
Apply	Application	Real-world Context	Interdisciplinary Linkage
Reflect	Design Thinking	Critical Analysis	Iterative Mindset

