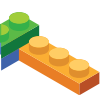




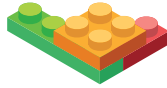
Snapology Class Catalogue

Creating future Scientists, Engineers, Artists
& Mathematicians ... one block at a time

www.snapology.nsw.edu.au



Contents



- i. Snapology Management Team
- ii. About our Educational Philosophy
- iii. Snapology Advisory Panel

1 Snapology Programs

2 Pre-School Programs

- 2 ABCs & 123s
Junior Creator's Club
- 3 Discovering Dinosaurs
Animal Explorers
Shapes, Colors, and Counting
Planes, Trains & Automobiles Jr.

4 Early Stage 1 Programs

- 4 Kinderbots
- 5 Junior Engineers (Yellow Belt)
Junior Scientists: All About Animals

6 Stage 1 Programs

- 6 Basic Engineers
- 7 Creature Creator Robotics
- 8 Planes, Trains & Automobiles
- 9 Junior First® Lego® League

10 Stage 2 Programs

- 10 Intermediate Engineers
- 11 Amusement Park Engineers
- 12 Super Structures (Architecture)
- 13 Snapology Scientists
- 14 Science of Superpowers
- 15 Incredible Inventions Robotics
- 16 Gamebots Robotics
- 17 Gamebots Beginner Coding
- 18 AttackBots Beginner Coding
- 19 Minecraft: Basic

20 Stage 3 Programs

- 20 Brick Art and Design Lab (Art History)
- 21 Amusement Park Engineers
- 22 Space Wars Robotics
- 23 Real World Robotics
- 24 Mega Machines Robotics
- 25 Combat Robots (Robot Games)
- 26 Robot Challenge (Remote Control Adventure)
- 27 Minecraft: Advanced
- 28 Minecraft: Epic
- 29 Drone Commander

30 Stage 4 Programs

- 30 Drone Commander
- 31 Advanced Engineers (Black Belt)
Alternative Energy
- 32 Animation Studio (Let's Make a Movie)
First® Lego® League

33 Stage 5 Programs

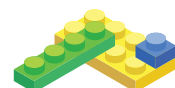
- 33 Robotics Rescue Mission
- 34 Robot Olympics

35 School Holiday Programs

- 35 Fidget Spinner Science
Science of Slime
- 36 Sports Science
Escape Snapology
Awesome Adventures Robotics
- 37 Inventor's Club Robotics
Minecraft Movie-making
Star Wars® Movie-making
- 38 Snapology Ninjas
Adventures with Star Wars®
Superheroes
- 39 Monster Mania
Military Patriots
Mini-Figure Mania
- 40 Frozen
Castles, Kingdoms & Wizards
Snapology Friends
- 41 Superheroes of the Bible
Building Faith
Pokemania
- 42 Angry Birdies

43 Other Programs

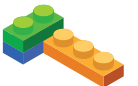
- 43 Connections
Adaptive Play
Building Commitment to End Bullying
- 44 Building Leadership
Building a Better World (1-3 Hour Workshop)
Snapology for Seniors (Adults)
- 45 Team Building & Meeting Facilitation (Adults)
Team Building
Meeting Facilitation



Management Team

Snapology was created by two sisters, Lisa and Laura Coe, who observed the love their children had for creative play using building blocks and other materials that snap together. The idea of offering enrichment classes and camps to teach science, mathematics, technology and literacy concepts excited them given both of their backgrounds in mathematics and science.

Both Laura and Lisa currently live in Pittsburgh, PA.



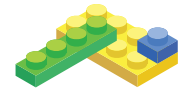
Laura Coe holds a B.S. in Mathematics from Pennsylvania State University. She was employed as an Actuary in the healthcare industry for 22 years before engaging in Snapology on a full-time basis. Laura has a broad background in mathematics, statistics and finance. Laura is the mother of two wonderful sons.



Lisa Coe holds a B.S. in Pharmacy from the University of Pittsburgh. She has been employed as Pharmacist and Consultant in the healthcare and pharmaceutical industry for the past 25 years. Lisa has extensive experience in sales, marketing and strategic business management. She is blessed to be the mother of a beautiful little boy.



About Our Educational Philosophy



Snapology's mission is to provide children an opportunity to engage in “playful learning” activities that will stimulate their creativity and spark an interest in learning.

Research has shown that many of children's best learning experiences come when they are engaged not simply in interacting with materials, but in **designing, creating, and inventing with them**¹. Our classes are based upon several strategies that have been shown to maximize learning through the use of various activities and technologies in **creative, playful, and “learningful”** ways.²

- We personalize the learning through lesson plans based on themes such as sports, animals, space or other topics of interest to children.
- The class structure is flexible allowing children to progress and explore at their own pace.
- We use **familiar objects in unfamiliar ways** by incorporating the use of LEGO® bricks.
- Snapology's enrichment programs are developed to meet specific Common Core Standards and Next Generation Science Standards.

Snapology offers a variety of activities

designed to reinforce the core competencies and curricula being taught at each grade level. Our activities offer students an environment where they are encouraged to create and interact with technology and explore the world around them through a hands-on approach that promotes playful learning.

Inclusive Nature

Snapology provides an inclusive environment for children to learn and play. Our programs are popular with both traditional and special needs children, including children on the autism spectrum and with sensory processing needs.

Snapology Program Advisory Panel

Snapology's Program Advisory Panel (SPAP) is comprised of a group of professionals with backgrounds and expertise in child development, robotics, engineering, educational administration and/or child psychology. This panel provides feedback and strategic guidance regarding Snapology programs.



1. Papert, S.(1980). Mindstorms: Children, Computers, and Powerful Ideas. New York: Basic Books. & Resnick, M. (2002). Rethinking Learning in the Digital Age. In G. Kirkman (Ed.), The Global Information Technology Report: Readiness for the Networked World(pp. 37 -32).

2. Resnick, M (2006) Computer as Paintbrush: Technology, Play and the Creative Society, Play Equals Learning, Oxford Press

Snapology Advisory Panel



Amos Glenn, Ed. D

- Learning Engineer, Carnegie Mellon University
- Doctor of Education, Instructional Design and Technology
- Specialties: education and training, instructional technology, instructional design, educational content development, project management, programming, public speaking and presentation



Soma Mukherjee, MBA

- B.S. Electrical Engineering, B.A. Information Science, University of Pittsburgh
- MBA, Indiana University of Pennsylvania
- Specialties: FLL Coach, robotics/engineering



Mary Anne Christ

- Ph.D., Clinical Psychology, The University of Georgia
- Assisted in the «Autism Research Program, NICHD Collaborative Program of Excellence in Autism
- Specialties: outpatient therapy; program development and administration; clinical supervision, children, adolescents and families; anxiety, depression, parent/child problems, ADHD



Knolan Rawlins, Ph.D

- Wellness Coordinator at PLEA, a school-based partial hospital serving students with special needs.
- Doctor of Philosophy (Ph.D.), Instructional Management and Leadership
- Specialties: child development, leadership, management, early intervention, special education, educational administration



Shimira Williams

- B.S. Behrend in Business Economics, Pennsylvania State University
- Community Fellow at The Fred Rogers Center for Early Learning and Children's Media at St. Vincent College
- Specialties: Technology consultant, digital infrastructure expert, building digital citizens through play and productivity



Snapology Programs

Local, curriculum-relevant content

- Over 60 programs mapped to the **NSW curriculum** with outcomes and detailed lesson plans
- Our curriculum is developed after performing **extensive research** on the most developmentally appropriate ways for children to learn
- Curriculum is continuously refined by a team of **STEAM experts**

Globally tried and tested

- Tried, tested and loved by **over 100,000 students over 8 years**
- Children who attend Snapology programs show **increased interest in doing well in school**
- Attendees have become more interested in **attending university**

The hype is real

- Snapology uses the **most appropriate** and latest learning tools, backed by evidence-based research
- We **don't** get caught up in **gimmicky toys** or flashy new products
- Programs are aided by laptops and other **technological aides**, as appropriate

Our approach

- We focus on both **academic enrichment and social development**
- We understand the importance of partnering, teamwork, collaboration, problem solving, critical thinking and presentation skills
- Our programs are rooted in **passive learning techniques** such that children are having too much fun to realise that they are learning
- Programming designed to accommodate **students on the Autism spectrum** and/or with sensory disorders



Pre-School Programs

ABCs & 123s

AGES
2-3 (Requires Parent)
or 3-5

Learning was never this much fun when I was a child. Children will learn their colors, shapes, letters and numbers using DUPLO® bricks and other interactive learning toys during this fun program. This program is designed to reinforce the current curriculum being taught to preschoolers. To strengthen their knowledge in a playful manner, children are engaged in both structured and imaginative play during each session.

Academic Enrichment

- Develop basic language and verbal skills
- Practice letter and word creation, learn phonics
- Practice early math skills
- Counting, reinforce learning about shapes

Junior Creator's Club

Come watch your child and be amazed with what they create in this class. Preschoolers and Kindergarteners can participate in various creative play activities designed to promote the creative, social and expressive skills of children. You'll be amazed at the improvement you'll see in your child's fine motor skills after just a few visits to Snapology.

Academic Enrichment

- Develop basic language and verbal skills
- Practice letter and word creation, learn phonics
- Practice early literary skills
- Identify characters, conflicts, plot
- Elaborate on probable character actions and feelings

Discovering Dinosaurs

AGES
2-5

LESSONS
6

How is a Tyrannosaurus Rex different from a Triceratops? Is it just in their physical characteristics or is it also what they ate and when they lived? In Discovering Dinosaurs, your little paleontologists will explore what dinosaurs ate and when they lived while constructing their very own dinosaur model out of DUPLO® blocks. Through stories, building, and games, your little learners will be busy exploring the prehistoric world while gaining critical social and developmental skills without even realizing it!

Animal Explorers

AGES
2-5

LESSONS
6

The animals living in our backyards or in our towns are very different from the animals in other parts of the world. While some animals have adapted to live in freezing temperatures, others have adapted to live in extremely hot and dry environments. In Snapology's Animal Explorers class, students will learn where animals live and why an animal's habitat is important for survival. Through stories, games, and building animals with DUPLO® blocks, your little learner will be busy exploring biomes of the world while gaining critical social and developmental skills without even realizing it!

Shapes, Colors, and Counting

AGES
3-5

LESSONS
6

Concept and reasoning development begins very early for children and is a key component for preschool and kindergarten readiness. In Snapology Junior's Shapes, Colors, Counting program, your little one will begin to identify basic shapes, where those shapes appear in their environment, and recognize colors and numbers in a variety of ways.

Planes, Trains & Automobiles Jr.

AGES
3-5

LESSONS
6

Transportation is all around! Cars, buses, trains, and airplanes are all important for communities and the world to stay connected. In Snapology's Planes, Trains, and Automobiles program, your little learners will explore the importance of transportation and build models of cars, trains, boats, and more using Kid K'NEX®. Most importantly, they will experience important social interactions while working with a partner and learning with the group. Get ready for your child to come home with a whole new set of transportation facts!

Early Stage 1 Programs

Kinderbots

AGES
7

Children will begin to explore the world of robotics as they build simple models that teach the fundamentals of robotic design. Whether learning about sensors while building drills and magic wands, or discovering ways that gears and pulleys create movement while building helicopters and robotic dogs, your child is sure to have a great time.

Academic Enrichment

- Explore robotics and become introduced to computer programming Pseudo-coding, sensor input, mechanics
- Practice critical thinking skills through challenges
- Problem solving and inventiveness are encouraged through play

Syllabus Outcomes

- **STe1-WS-S** Observes, questions and collects data to communicate ideas
- **STe2-DP-T** Develops solutions to an identified need
- **STe5-PW-ST** Observes the way objects move and relates changes in motion to push and pull forces
- **STe7-DI-T** Identifies digital systems and explores how instructions are used to control digital devices

Students learn to

- Record observations using drawings, simple digital recording methods, oral descriptions and/or simple visual representations (AC SIS011)
- Observe the effects of push and pull forces on familiar objects (ACSSU033) **SciT**
- Work cooperatively with others to investigate ideas
- Observe the way a variety of familiar objects move (ACSSU005)
- Explore and manipulate materials to discover possibilities of their uses
- Respond to questions about familiar objects and events (AC SIS014)



Junior Engineers (Yellow Belt)

AGES
5-6

LESSONS
18

Young students build fun and simple models using DUPLO® blocks. By playing with and manipulating the models, they experience pulleys, levers, gears, wheels and axles while exploring energy, buoyancy, and balance. Classes include free-building time to promote creativity.

Academic Enrichment

- Develop basic language and verbal skills
- Practice letter and word creation, learn phonics
- Practice early literary skills
- Identify characters, conflicts, plot
- Elaborate on probable character actions and feelings

Syllabus Outcomes

- **STe1-WS-S** Observes, questions and collects data to communicate ideas
- **STe2-DP-T** Develops solutions to an identified need
- **STe4-MW-ST** Identifies that objects are made of materials that have observable properties

Students learn to

- Observe and describe some properties of a range of materials (ACSSU003) **SciT**
- Explore the use of materials in the built environment based on their properties **DesT**
- Observe the way a variety of familiar objects move (ACSSU005)
- Observe the effects of push and pull forces on familiar objects (ACSSU033) **SciT**



Junior Scientists: All About Animals

AGES
5

LESSONS
8

Allow your child to cultivate their love of animals. Children will learn various concepts of animal life cycles and animal characteristics & traits using K'Nex toys and other interactive learning tools. We make animal science fun at Snapology!

Academic Enrichment

- Explore the animal kingdom and discover differences in animal anatomies and structure
- Insects, arachnids, vertebrates, invertebrates, mammals, birds, reptiles, fish
- Develop higher level biology concepts
- Biodiversity, habitats, ecosystems

Syllabus Outcomes

- **STe3-LW-ST** Explores the characteristics, needs and uses of living things
- **STe1-WS-S** Observes, questions and collects data to communicate ideas
- **STe2-DP-T** Develops solutions to an identified need
- **VAES1.2** Experiments with a range of media in selected forms.

Students learn to

- Record observations using drawings, simple digital recording methods, oral descriptions and/or simple visual representations (ACSIS011)
- Share observations and ideas based on guided investigations (ACSIS012)
- Recognise that living things have basic needs including air, food and water (ACSSU002)
- Participate in guided investigations to identify living things and the external features of plants and animals in the local environment **SciT**
- Communicate findings of observations of living things in their environment **SciT**



Stage 1 Programs

Basic Engineers

AGES
6-8

LESSONS
7

Come build super-cool cars, catapults, and parade floats that use gears, axles and pulleys. Work in teams under guided instruction to build a different model using LEGO® bricks each week. This class is designed for children of all ages and building abilities to build together. Classes include free-building time to promote creativity.

Academic Enrichment

- Explore the scientific method and engineering design process
- Develop appropriate strategies for logical problem solving
- Make measurements and observations to collect data for comparisons
- Evaluate different methods of measurement and observation
- Learn about mechanical movement and energy
- Potential and kinetic energy, gears, pulleys, motors

Syllabus Outcomes

- **ST1-1WS-S** Observes, questions and collects data to communicate and compare ideas
- **ST2-1DP-T** Uses materials, tools and equipment to develop solutions for a need or opportunity
- **ST9-1PW-ST** Investigates how forces and energy are used in products
- **ST3-1DP-T** Describes, follows and represents algorithms to solve problems

Students learn to

- Collaborate to develop designed solutions
- Represent and communicate observations and ideas in a variety of ways (ACISIS029, ACISIS042)
- Explore how technologies use forces to create movement in products (ACTDEK002) **SysT**
- Design and develop a product that uses one or more forms of energy to create change **DesT SysT**
- Perform strategic roles within a group to solve a problem (ACTDEP009)





Creature Creator Robotics

AGES
6-8

LESSONS
10

In Snapology's Creature Creator Robotics class, your animal lover will create their own animal inspired robotic models. Students will learn about gear ratio, sensors, simple machines, and programming as they build insects, dolphins, gorillas, and much more. Your child is sure to have a wild time as they build, learn, and play.

Academic Enrichment

- Investigate topics in zoology including animal structure and habitats
- Learn about pseudo coding, sensor inputs, and robotics
- Learn about mechanics through pulleys, gears, and cranks
- Use engineering skills to solve challenges

Syllabus Outcomes

- **ST1-1WS-S** Observes, questions and collects data to communicate and compare ideas
- **ST2-1DP-T** Uses materials, tools and equipment to develop solutions for a need or opportunity
- **ST3-1DP-T** Describes, follows and represents algorithms to solve problems
- **ST9-1PW-ST** Investigates how forces and energy are used in products
- **ST4-1LW-S** Describes observable features of living things and their environments
- **VAS1.1** Makes artworks in a particular way about experiences of real and imaginary things.

Students learn to

- Collaborate to develop designed solutions
- Represent and communicate observations and ideas in a variety of ways (AC SIS029, AC SIS042)
- Explore how technologies use forces to create movement in products (ACTDEK002) **SysT**
- Design and develop a product that uses one or more forms of energy to create change **DesT SysT**
- Perform strategic roles within a group to solve a problem (ACTDEP009)
- Identify that living things live in different places that suit their needs (ACSSU211)
- Describe the external features of a variety of living things (ACSSU017)

Planes, Trains & Automobiles

AGES
5-8

LESSONS
8

In Snapology's Planes, Trains, and Automobiles program, children will explore the world of transportation. Students will build models of their favorite forms of transportation as they learn about energy, wheels and axles, air resistance, and more.

Academic Enrichment

- Learn about various power and energy sources utilized in transportation
- Experiment with concepts in physics including magnetic fields, momentum, and friction
- Understand the importance of design in optimizing energy efficiency
- Compare and contrast historical and modern forms of transportation

Syllabus Outcomes

- **ST1-1WS-S** Observes, questions and collects data to communicate and compare ideas
- **ST9-1PW-ST** Investigates how forces and energy are used in products
- **ST3-1DP-T** Describes, follows and represents algorithms to solve problems
- **ST2-1DP-T** Uses materials, tools and equipment to develop solutions for a need or opportunity

Students learn to

- Collaborate to develop designed solutions
- Represent and communicate observations and ideas in a variety of ways (AC SIS029, AC SIS042)
- Explore how technologies use forces to create movement in products (ACTDEK002) **SysT**
- Design and develop a product that uses one or more forms of energy to create change **DesT SysT**
- Perform strategic roles within a group to solve a problem (ACTDEP009)



Junior First® Lego® League

AGES
6-9

LESSONS
11

Guided by adult coaches, students work with LEGO® elements and moving parts to build ideas and concepts. Working in teams of 2-6 children, teams work to complete the Building Challenge and 'show off' their project on the final day of the program. All the teams are celebrated and leave with an award.

Academic Enrichment

- Explore engineering concepts
- Motors, gears, pulleys, energy, mechanics, sensors, and basic programming
- Engage in research about the yearly challenge topic
- Determine relevant information, organize, and present findings
- Utilize critical thinking skills
- Solve real world challenges using research and creativity

Syllabus Outcomes

- **ST1-1WS-S** Observes, questions and collects data to communicate and compare ideas
- **ST2-1DP-T** Uses materials, tools and equipment to develop solutions for a need or opportunity
- **ST3-1DP-T** Describes, follows and represents algorithms to solve problems
- **ST9-1PW-ST** Investigates how forces and energy are used in products
- **ST6-1MW-S** Identifies that materials can be changed or combined
- **ST7-1MW-T** Describes how the properties of materials determine their use

Students learn to

- Respond to questions and make predictions about familiar objects and events (ACSIS024, ACSIS037)
- Explore and answer questions through participation in guided scientific investigations (ACSIS025, ACSIS038)
- Collect data from observations
- Record observations accurately and honestly using observational drawings, labelling, informal measurements and digital technologies (ACSIS026, ACSIS039)
- Compare observations with those of others (ACSIS041, ACSIS213)
- Develop collaboration skills to effectively conduct investigations
- Consider safety, sustainability and time constraints when producing solutions (ACTDEP007)
- Perform strategic roles within a group to solve a problem (ACTDEP009)

