

YOUR STUDENTS' NEW CHROMEBOOKS ARE MORE THAN A TOOL. WITH NCLAB, THEY'RE A GATEWAY TO THE FUTURE.

NCLab uses the engaging power of video games to teach kids problem solving, coding, and 3D modeling. The best part? We made it easy for teachers to use, too. Whether you're a seasoned technophile or just learned to text, NCLab has made advanced computing education as easy as 1, 2, 3.



Download the standards-based lesson plans, textbooks, and pacing guides at **nclab.com/resources**



Open NCLab on your Chromebook.



Just kidding, there is no #3. It's that easy



WHY USE NCLAB?

Oh, let us count the ways.

Aligned to Standards.

Common Core Math Process Standards

Common Core ELA Standards

NGSS Cross-Cutting Concepts (CCC)

NGSS Science & Engineering Practice (SEP)

NGSS Engineering Standards (SEP)

CTSA Standards

Reference each course's individual lesson plan for a full list of the standards covered.

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Learning Made Fun.

Kids love video games, and why wouldn't they? Video games are captivating, graphical, competitive, and challenging. Here at NCLab, we thought: **why can't we use the** power of play to teach important skills?

NCLab has harnessed the fun of video games to teach difficult math and engineering concepts. In addition, our courses teach kids to think logically and process complex information.

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Robust Support for Teachers.

We want to make NCLab just as easy and fun for teachers at it is for students. That's why we've developed extra resources to help you implement NCLab seamlessly into your classroom:

Lesson Plans Assessments Pacing Guide Standards Map Classroom Admin Screen Teacher Professional Development*

*For information about teacher trainings, please contact support@nclab.com



Infinite Possibilities.

NCLab is more than educational courses. Once your students graduate from our courses and master the basics, they'll have access to the entire NCLab Creative Suite.

In the NCLab Creative Suite, anyone can access a library of free, opensource software. By taking your students through NCLab courses, you're giving them the skills to explore these advanced computing activities and develop real-world skills at a young age.



While going through the courses, every student can submit their creative work to NCLab's weekly competitions.

Winners will receive a certificate, their name will be added to NCLab Nevada Ready 21 Hall of Fame, NCLab will write a blog post about them, and they will be considered for finals. The weekly competitions will be judged by NCLab, and the finals will be decided by the public.





The course is a natural step up from block programming (Scratch, Lightbot, Hour of Code). It uses a simple language that does not contain colons, semicolons, brackets, braces, parentheses, decimal points, commas, and other complicated syntax elements of advanced programming languages that cause frustration to beginners. The code has Python block formatting and some Python commands, and therefore it prepares the students for a smooth transition to the follow-up Turtle and 3D Modeling courses.

The Karel course has 175 lessons, divided into 5 modules. After completing the course, students can tackle a bonus section with world-class programming challenges. Students start with basic commands, and work their way up to complex sequences. Karel Jr. is maze-based, which teaches students spatial reasoning and logic in addition to the basics of programming.

Visit nclab.com/resources for the Karel Jr. assessments, pacing guide, standards map, and lesson plans.

This course teaches the three most important skills in computer programming: Computational thinking, problem solving, and perseverance. It also teaches how to write and debug code without the complex syntax of







Students begin with learning basic Tina's commands. The following sections explain the usage of Python loops, nested loops, variables and functions. Students also learn how to extrude 2D objects to 3D, and how to revolve the turtle's trace to obtain rotational solids, surfaces and shells. At the end of every section, students create their own art project.

The Turtle course is split into 2 modules. Each module has 5 sections with 8 levels each, where students progress through the following topics: Basics, Loops 1 and 2, Nested Loops, Variables, Functions, Pendants, Rotational Solids, and Rotational Surfaces and Shells. Students learn to move Tina with programming language, and become proficient at using math in 3D space.

Visit nclab.com/resources for the Turtle assessments, pacing guide, standards map, and lesson plans.

ACTUAL STUDENT DESIGNS

Turtle Tina We recommend taking this course after Karel Jr. and before the 3D Modeling course. Students are introduced to Python programming by drawing simple patterns with a turtle named Tina, and they are also introduced to 3D modeling by turning the patterns into pendants and other





This course will walk you through 2D and 3D shapes, colors, geometrical transformations and operations with 2D and 3D objects that altogether are called "Constructive Solid Geometry (CSG)". It focuses on teaching concepts rather than specifics of a selected CAD software. As a result, you will gain proficiency in a wide range of 3D modeling techniques, be able to create professional-grade CAD designs directly in NCLab, and be able to quickly adapt to any other CAD software that comes your way.





The course builds on skills learned in Turtle Tina to help students create complex 3D objects. The course begins with getting acquainted with basic 2D and 3D shapes. Students use these shapes to complete unfinished models. After students become comfortable with 2D and 3D shapes, the course advances to complex rotational processes and visualization in 3D space. Finally, the course teaches students how to work with Bezier curves (without being exposed to the math behind them), and how to use them to create solids, shells and surfaces of revolution.

This course includes more than 160 projects that are split into 4 modules and 20 sections. Once they have completed this course, students will be able to work with free, open-source 3D modeling software (available in the NCLab creative Suite).

Visit nclab.com/resources for the 3D modeling assessments, pacing guide, standards map, and lesson plans.



