

# GRADES 6 - 12 CURRICULUM OVERVIEW





## Grades 6 - 12 Curriculum Overview

Accelerate Education's 6-12 courses are designed to engage students with different learning styles and abilities, utilizing rich, interactive learning assets that provide both visual and auditory stimulation. Using cutting-edge technology, the courses offer rich, rigorous, in-depth standards aligned multimedia lessons.

Students interact with this content via multiple presentation formats, including photos, visual learning animations, videos, interactive text, and guided and independent practice activities. These resources are especially powerful for relating instructional concepts to real-world contexts.

### Lesson Pages

The first page students see when they enter a lesson is an Introduction page that summarizes the objectives of the lesson, any prerequisites or materials required to complete the lesson, and a list of key words referenced in the lesson.

Ensuing lesson pages contain a combination of written direct instruction, interactive videos, as well as frequent practice activities.

### In Their Defense

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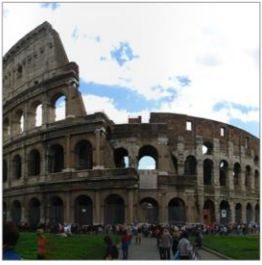
Which classical civilizations invented lawyers?

Why do people need lawyers today? Why not just find a copy of the nation's laws and figure out your own case? If you're like most people, you find the number and complexity of laws far too overwhelming to navigate on your own. When you hire a lawyer, you expect that person to know your country's laws well enough to help you use them to your advantage—whether that involves getting a fair trial or settling a dispute with an employer or a neighbor.

We can thank the Roman justice system for creating a model that was so complex and detailed that lawyers were needed to help ordinary citizens interpret it. The Romans introduced the idea of **jurisprudence**—the study of the law as a type of knowledge, like science or medicine. Soon, the amount of information and detail related to creating and enforcing laws was astounding in scope.

How did the Roman system of jurisprudence affect the way we do law today? The slides below will help explain how.

### Archeologists Examine the Ruins







The reconstruction of the Colosseum begins with the most important evidence of all—the historic remains of the site. Archeologists study what materials the original builders used, what technology was available at the time, and what the purpose of the original structure was.

### Liberty! Equality!

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How can you use what you learned about Enlightenment ideals to inspire other quests for freedom?

How far have Enlightenment ideals spread—here in the 21st century? Are all, or even most, governments based on a belief in the social contract between citizens and government? Sadly, no. There are as many nations ruled by leaders with absolute power as there are republics or other forms of democracy. Countries ruled by kings and queens are less common than in the 1800s, but other types of rulers have taken their place—dictators, powerful groups of one sort or another, and heads of religious sects.




It's not too late, though! The countries of the world that do not protect their citizens' liberty and equality can still be persuaded to change, and that is your task for this project. Find a nation that does not represent Enlightenment ideals, such as North Korea or Iran, and create some materials designed to rally its people around the goal of realizing these ideals in their own country. You can create posters (digitally or by hand), write pamphlets or manifestos, or design a webpage urging citizens to unite and fight for their natural rights.

How can the knowledge of the Age of Enlightenment guide new republics in their first steps at self-governance? People organizing a revolution need more than encouragement—they also need advice. Therefore, the materials you create should include some "do's and don'ts" of revolutionary action. Feel free to use examples from history to explain or suggest why new republics should go—or not go—in a particular direction.

For this project, you will create ONE of the following: a poster series (3 posters), a pamphlet, or a webpage with links to other webpages. Whatever format you choose, be sure to include images or symbols to inspire your message of freedom and equality. *After, include at least one element that you think is most important to your message. I will be looking for...*

### This Event Fact or Myth?



A group of vastly outnumbered Spartans held off hundreds of thousands of Persians for three days before finally being

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## Other Purposes of the Skeletal System

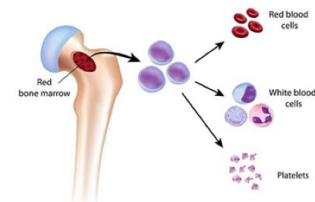
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What purposes does the skeleton have besides structure?

When we think of the skeleton, we think of the bones that give the body its shape. But the skeletal system has other purposes, too. Without skeletal systems, vertebrates wouldn't be able to make new blood cells, or have healthy muscles and kidneys.

The average life span of a human red blood cell is about two months. Fortunately, our skeletal system helps to make new blood cells. Some vertebrate bones contain **marrow** in their centers. Marrow is a soft, fatty tissue that makes a special type of cell. These cells, when they divide, can then go on to become red blood cells to carry oxygen through the body, white blood cells to help fight infection, or platelets that help to make clots when an animal gets a cut.

When we think of the skeletal system, we usually think of calcium to build strong and healthy bones and teeth. Did you ever wonder why? Vertebrates need calcium to have their muscles and nerves work properly. Calcium also helps cells to communicate, stabilizes blood pressure, and helps with many other processes. When this level of calcium in the blood is low, the body will release parathyroid hormone to stimulate the release of calcium from the bones. This process is called bone resorption. When the level of calcium in the blood is high, the body will release calcitonin to stimulate the storage of calcium in the bones. This process is called bone formation.



The skeletal system functions in helping to make blood cells.

The Crocodilia order can be distinguished from other reptiles because of their size. They are some of the larger reptiles - measuring five to six feet long. They have eyes and nostrils positioned on top of their heads to help with hunting and breathing while submerged underwater. They have powerful jaws, a muscular tail, and large protective scales.

Crocodylia includes crocodiles, alligators, gharials, and caiman. Can you tell the main difference between these types of crocodylians? Study the images and then press the Show Me button below for an explanation.



Crocodiles:



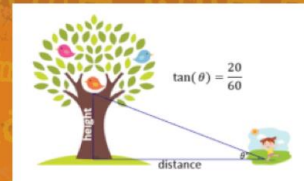
Alligators



### A Gharial



### A Caiman



The tree is \_\_\_\_\_ feet tall.

20

60

80

## Scale Models

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Architects draw blueprints and build models of buildings and landscapes using proportionality

Scale drawings are handy tools to use when planning for a building renovation or new construction. They allow everyone involved to visualize the finished project and to make changes before construction begins. The architect creating the design uses math to create accurate scaled dimensions, while the construction team uses math to translate the scale into actual dimensions.



Before a building is model of the buildin

Both a blueprint and building the dimensions of al

## What is a Function? ≡

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How is a relation different from a function?

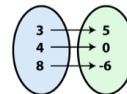
A function is a type of relation. For every  $x$  input (or domain) of a function, there is one and only one  $y$  output (or range). We sometimes say that a function is a one-to-one relation between  $x$  and  $y$ .

 Remember, a relation is not always one-to-one.

Think of the touchpad on an ATM machine. When you press the number 1 key, what do you see on the screen? The number 1 and nothing else. When you press the number 2 key, you see the number 2 and nothing else. And so on.

The following is an example of a function: (Notice the use of the ordered pairs. The first number is for the  $x$  or **domain** and the second number is for the  $y$  or **range**.)

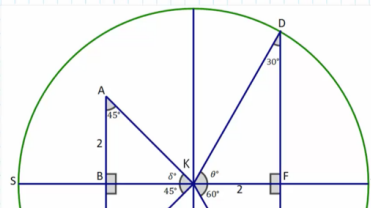
You can also "map" domain values to range values like this:

 $\{(3, 5), (4, 0), (8, -6)\}$ 

## Tangents for Special Rights

How can you use the tangent ratio to solve problems involving 45-45 and 30-60 triangles?

Practice Problem #1 - Find the tangent ratio of  $\delta$ .


$$\tan \delta^\circ =$$



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### Guided and independent practice activities

Students will encounter many chances to practice and get immediate feedback on their progress through a variety of guided and independent practice activities. Practice activities may include:

- Interactive multiple-choice questions with immediate feedback and hints
- Drag-and-drop diagrams, lists, charts, and illustrations
- Graphic organizers to review and organize thoughts

Independent Practice activities with scaffolded feedback allow students to check their knowledge and optimize their use of review material prior to taking lesson assessments.

Now you try.

Complete the drag and drop activity below. Drag each circle to the correct target, indicating whether the graph, table, or ordered pairs demonstrate a relation or function.

Correct. The dotted lines show that this passes the vertical line test, so it is a function.

Next

*An interactive drag-and-drop review activity from Algebra 1.*

Now that you have learned about the life cycle of large stars, complete this self-check.

What is the correct order for the life cycle of a large star? The steps are scrambled. Use numbers 1-8 to show the correct order.

giant gas formations, dust clouds form	1
hydrogen fuel depleted	2
hydrogen, nuclear reaction powers star	3
star becomes red giant	4
star explodes as supernova	5
star matter dissipates to form new stars	6
dense neutron star remains	7
gravity, pressure ignites star	8

Check Reset

*An interactive drag-and-drop review activity from Earth Science.*

### Multimedia

Accelerate Education's 6-12 courses use multimedia extensively to engage learners and address multiple learning styles. Multimedia presentations enhance concepts presented in the text, connect content with related subject areas, and assist students in grasping key ideas. Videos are included in each module and are integrated into many of the project-based lessons. Examples include the following:



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### Laboratory Demonstration

Major concepts in 6-12 science courses are presented as hypothesis-driven experiments. Videos provide experiential learning opportunities and show how science applies to daily life. After an experiment is completed, students are encouraged to take what they've learned and ask more probing questions. Proper lab safety and data collection are demonstrated.

### Video tutorials and demonstrations of scientific concepts

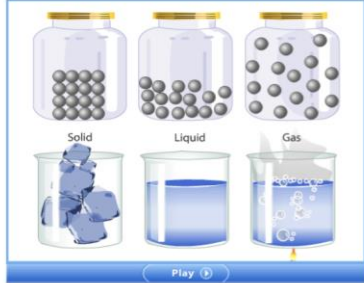
**Solid, Liquid and Gas**

A **solid** has definite volume and definite shape.

A **liquid** has a definite volume but not a definite shape.

A **gas** does not have a definite volume or shape.

[Read text](#)



[Play](#)

### Enhancement Videos

Videos are employed to enhance instruction on complex assignments. This video provides guidance about working on an analytical research project.

### Learning to create a research plan

What strategies can you use to find information to analyze?

Later in this lesson, you will create a research plan that will guide your work on an analytical research project. Before you settle on a plan, though, you may want to do some initial, preliminary searching. Most students start by typing search terms into an Internet search engine like Google or Yahoo. The search results delivered by one of these systems will probably give you plenty to read. There are better strategies, though, than going down the list of links and clicking on all of them.



### Video Tutorials

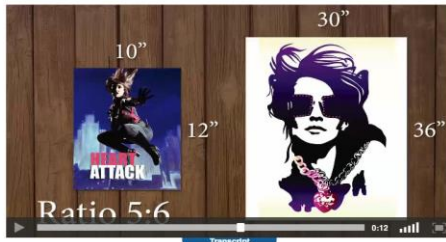
Videos are used to develop critical thinking and model problem solving skills. This multimedia tutorial demonstrates how students can use manipulatives to model and solve problems. These videos help students tie lesson concepts to real-world contexts and experiences.

### Videos teaching critical thinking and problem solving

**Picture Perfect**

What size frame do you need for that poster?

Let's say you just received a poster of your favorite band for your birthday. You'll want to frame it so you can hang it up in your room, right? This video shows you how to calculate the exact dimensions and area of a frame for any poster.



Ratio 5:6

### Science in the World Videos

Videos provide students an opportunity to look at the real-world relationships of concepts covered in science courses. These videos are designed to engage students' curiosity and motivate them to move into the module.

### Lessons teach real-world application of curriculum

