# Modern Teaching & Learning

## Overview
Formerly known as "21st Century Teaching" or "21st Century Skills," modern teaching and learning is a phrase that describes essential elements of effective classroom instruction. Based on a student-centered model of instruction, modern teaching shifts the role of the teacher from provider of knowledge in the classroom to facilitator of learning. Similarly, through a constructivist theory of how students develop knowledge, learning is active, cooperative, and skills-focused. Modern learning is based on four essential skills necessary for students to hone throughout their education: **communication, collaboration, creativity, and critical thinking.** Using instructional strategies and available technologies, teachers can support modern learning in the classroom, prepare students with career-ready skills, and teach content through interactive contexts.

## Resources
- Marzano, R. J., Pickering, D. J., and J. E. Pollock, J. E. (2001). *Classroom instruction that works*. Alexandria, VA. ASCD.
- The Partnership for 21st Century Skills (www.p21.org)
- Edutopia (www.edutopia.org)

## Instructional Strategies
- Identifying Similarities & Differences
- Non-Linguistic Representations
- Summarizing
- Generating & Testing Hypotheses
- Socratic Questioning
- Claim-Evidence-Reasoning
- Cooperative Learning
- Project-Based Learning
- Visible Thinking

## Learning Skills
- **Collaboration**: working together, proactively, toward achieving a common goal while combining and growing their abilities
- **Communication**: productive expression/interpretation of meaning from verbal or non-linguistic representations of ideas
- **Creativity**: generating novel solutions to problems, or using resources in effective and thoughtful ways
- **Critical Thinking**: analyzing situations or ideas for their connections to prior experience and explorable features

## Activities
1. Consensus Building (*Communication, Critical Thinking*)
   Have students read a short story, article, witness a demonstration, or examine some multimedia content in small groups. The selected content should be open to interpretation according to multiple angles. Have students work with their small groups to make a claim about the content, justify it with evidence, and provide reasoning for their claim. This should give each student the opportunity to share with others in small groups, but require that the group come to agreement. Then, each small group shares their claim-evidence-reasoning with the entire class using a visual aid. Whole-class discussion continues until each group shares, other students have the chance to follow up with questions, and the class arrives at a consensus about the content. This can be done with sticky notes, chart paper, whiteboards, etc.

2. <u>Model Development & Deployment</u> (*Communication, Creativity, Collaboration, Critical Thinking*)
A model is a concrete or abstract representation of information, which can be used to explain or predict future instances of similar information. Models come in conceptual, physical, mathematical, pictorial, graphical, or verbal form. Some examples of models include:

- The model of DNA as a double-helix structure of repeating patterns of molecules that interact in a specific pattern helps us predict genetic occurrences
- The model of government where citizens are represented at the local, state, and federal level by elected officials, but do not have direct power in decision-making, explains how a representative democracy works in a sovereignty
- The model of *rate x time = distance* can predict how far a car will travel at on cruise control if its speed and duration of travel are known
- The model of an artwork that has small, noticeable, and slightly blurred brush strokes, yet depicts a scene for its overall appearance but lacks significant detail, is a way of characterizing or identifying a painting as *impressionist*.

Through the examination of a variety of examples, testing hypotheses, and summarizing trends or patterns, students can **develop working models** in any content. Those models will serve to give students a conceptual or specific understanding of the content; moreover, students will have an "anchor" with which to interpret future experiences. **Deploying a model** consists of examining how new examples fit into the developed model. Over time, as more examples are observed, the trend may seem to change or the model may not fit. Through an iterative process, students can refine models or develop new ones in their content. This process is especially helpful for abstract concepts or ideas that can be physically observed by students.

A. *Concept Attainment*
This can be done in small groups or as an entire class. Select a concept to teach, like "freedom." Prepare images or video ahead of time to show students. Select examples that depict the concept clearly and ones that clearly do not depict the concept. On a whiteboard, interactive whiteboard, or chart paper, create a three-column table:

| WHAT IT IS | WHAT IT IS NOT | OVERALL |
| --- | --- | --- |

In each column, have students list properties of the concept based on the examples they observed. Make sure to communicate which examples are POSITIVE EXAMPLES and which are NEGATIVE EXAMPLES of the concept. After reviewing several examples, students should develop an overall model for the concept. Then, they should see further examples, critiquing them against their working model, and decide if the model needs refinement. This iterative process continues until students arrive at a functional model of the concept.

B. *Mathematical Modeling of Data*
Students observe a physical situation, decide what can be measured, and what can be compared. They decide to take measurements of their desired quantities, and compare them from example to example. After taking data on two quantities, they create a data table and/or graph to infer trends. Summarizing the trend can occur using words, proportions, or developing an equation. The resulting mathematical model should predict future examples outcomes of one quantity based on knowing the other quantity, for example distance & time for a moving car.

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## Consensus Building

### STORY:

"There was a **teenage girl** who was sneaking behind her mother's back to go and visit an older **boyfriend**, of whom the **mother** did not at all approve. The mother found out the girl was still seeing the older boy and grounded the girl for the weekend from her phone and from going out. That Saturday night, the girl snuck out, even after her mother told her very clearly she was grounded for still seeing the boy. The teenager walked to her boyfriend's house and spent the evening there. The girl and her boyfriend got into a fight that night over the mother's disapproval of the boyfriend. The girl stormed out of the boyfriend's house and started to walk to her older sister's nearby home, because she didn't think she could go home yet without being caught. The **sister** greeted the teenager at the door, but, upon finding out why she was there, told her she also disapproved of the boyfriend and that she was not welcome at her home. The teenage girl, not knowing where to go, began walking. She couldn't go back to the boyfriend's house due to their fight, her older sister turned her away, and she couldn't return home yet without being caught for sneaking out. So the girl walked to a nearby coffee shop. The **storeowner** was locking the store closed just as the girl approached. The girl told the storeowner she just needed somewhere to hangout for a little while until her mom went to sleep and she could return home unnoticed. The storeowner told the girl "sorry, you can't stay here; we're closed." The girl left the coffee shop on that Saturday evening planning to just wander the streets until her mom went to bed and then go home. The girl walked up and down the streets to pass time. Suddenly, a **drunk driver** ran a red light as the girl was crossing the street, hit the teenager and killed her."

### TASK:

With your group, rank all **6 characters** in order of who has most to who has least responsibility for the death of the student. Construct a whiteboard to show the order or responsibility your group agreed upon. Be prepared to clearly explain the reasoning behind your group's choices to the rest of the class and discuss others' choices too.

### CHARACTERS: (characters are listed in alphabetical order)

- Boyfriend
- Coffee Shop Owner
- Drunk Driver
- Girl (teenager)
- Mother
- Sister

**Most Responsible**                                          **Least Responsible**

| 1 | 2 | 3 | 4 | 5 | 6 |

**Socratic Circles**

## Equipment
*By: Edgar A. Guest*

Figure it out for yourself, my lad.
You've got all that the greatest of men have had,
Two arms, two hands, two legs, two eyes,
And a brain to use if you would be wise.

With this equipment they all began,
So start for the top and say, "I Can."
Look them over, the wise and the great,
They take their food from a common plate,
And similar knives and forks they use,
With similar laces they tie their shoes.
The world consider them brave and smart,
But you've got all they had when they made their start.

You can triumph and come to skill,
You can be great if you only will.
You're well equipped for the fight you choose,
You have arms and legs and a brain to use.
And the man who has risen great deeds to do,
Began his life with no more than you.

You are the handicap you must face,
You are the one who must choose your place,
You must say where you want to go,
How much you will study the truth to know.
God has equipped you for life, but He
Lets you decide what you want to be.

Courage must come from the soul within,
The man must furnish the will to win.
So figure it out for yourself, my lad,
You were born with all the great have had,
With your equipment they all began.
Get hold of yourself, and say: "I Can."