

# Engaging Students With Digital Learning

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OKLAHOMA STATE DEPARTMENT OF  
**EDUCATION**  
— CHAMPION EXCELLENCE —

# 2016 ISTE Student Standards

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## 1. Empowered Learner

- Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.

## 2. Digital Citizen

- Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.



# 2016 ISTE Student Standards

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## 3. Knowledge Constructor

- Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

## 4. Innovative Designer

- Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.



# 2016 ISTE Student Standards

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## 5. Computational Thinker

- Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

## 6. Creative Communicator

- Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.



# 2016 ISTE Student Standards

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## 7. Global Collaborator

- Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

For more information:

<http://www.iste.org/standards/standards/for-students-2016>



# SAMR

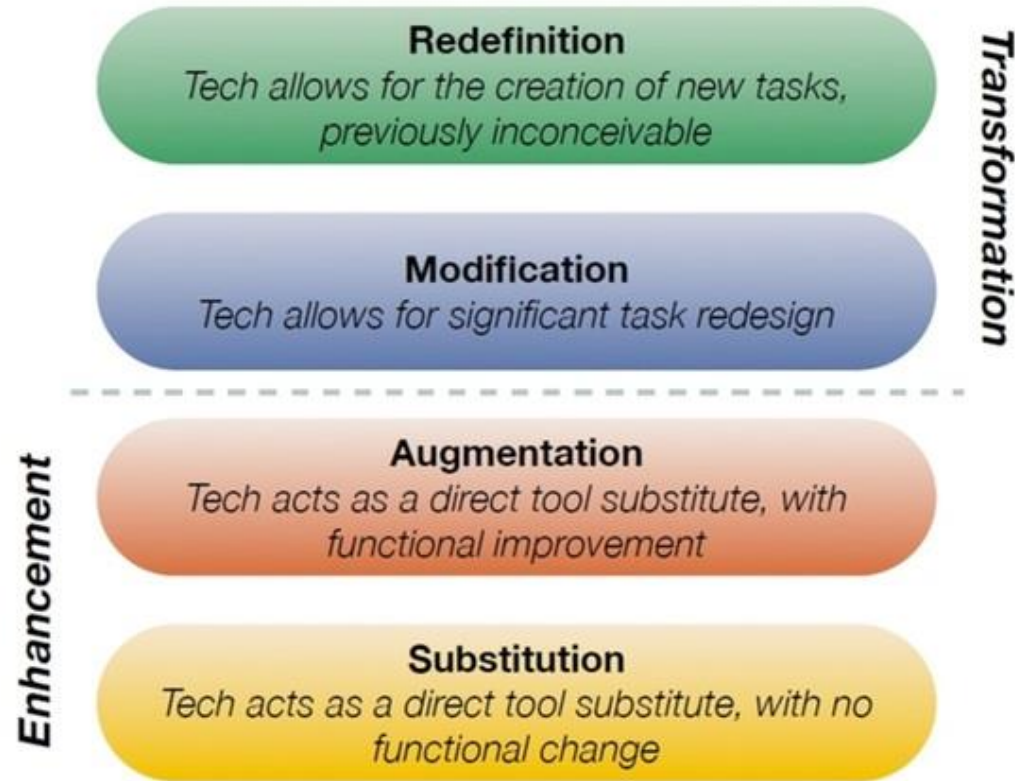
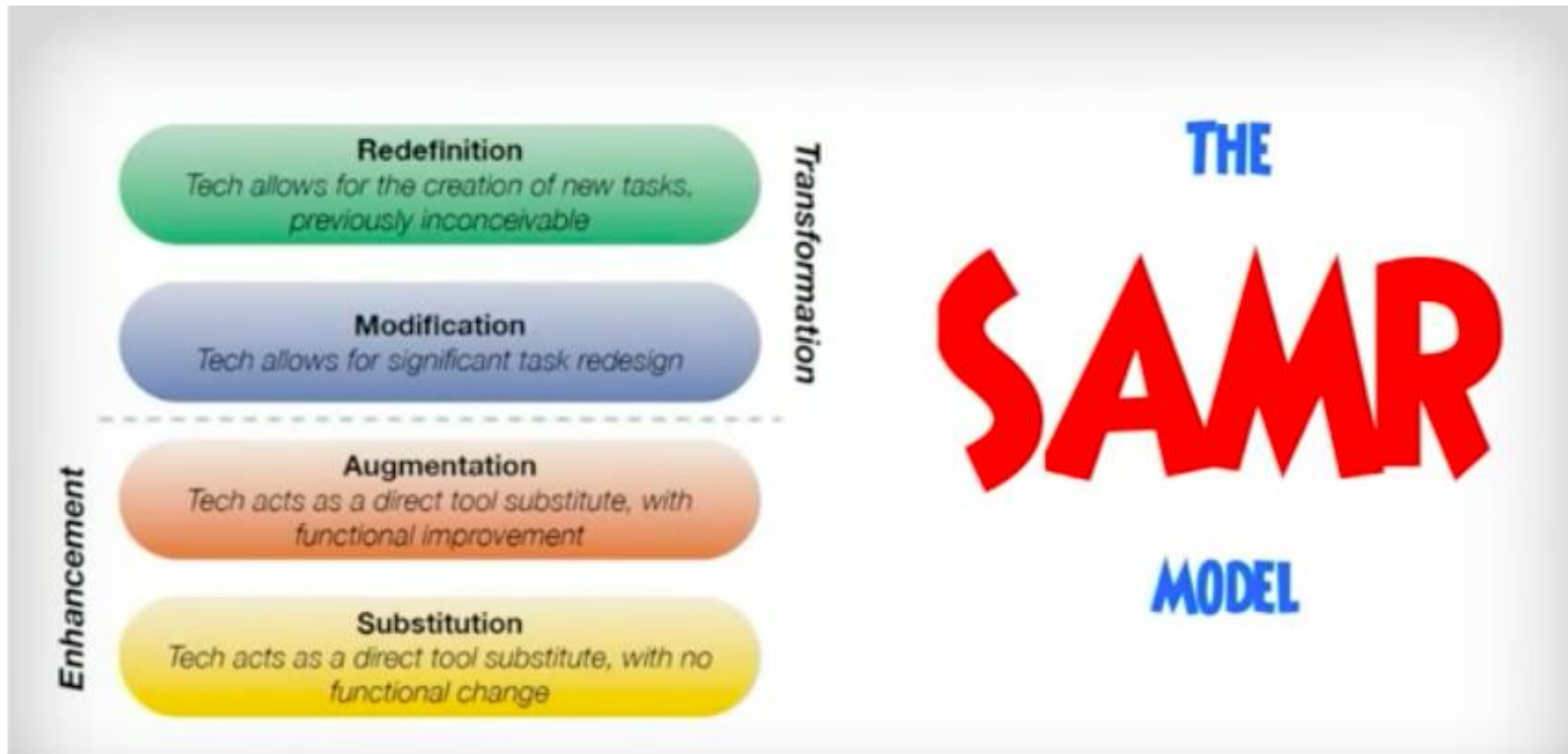


Image by Dr. Ruben Puentedura, Ph.D. <http://www.hippasus.com/rrpweblog/>



# SAMR – Explained by Students



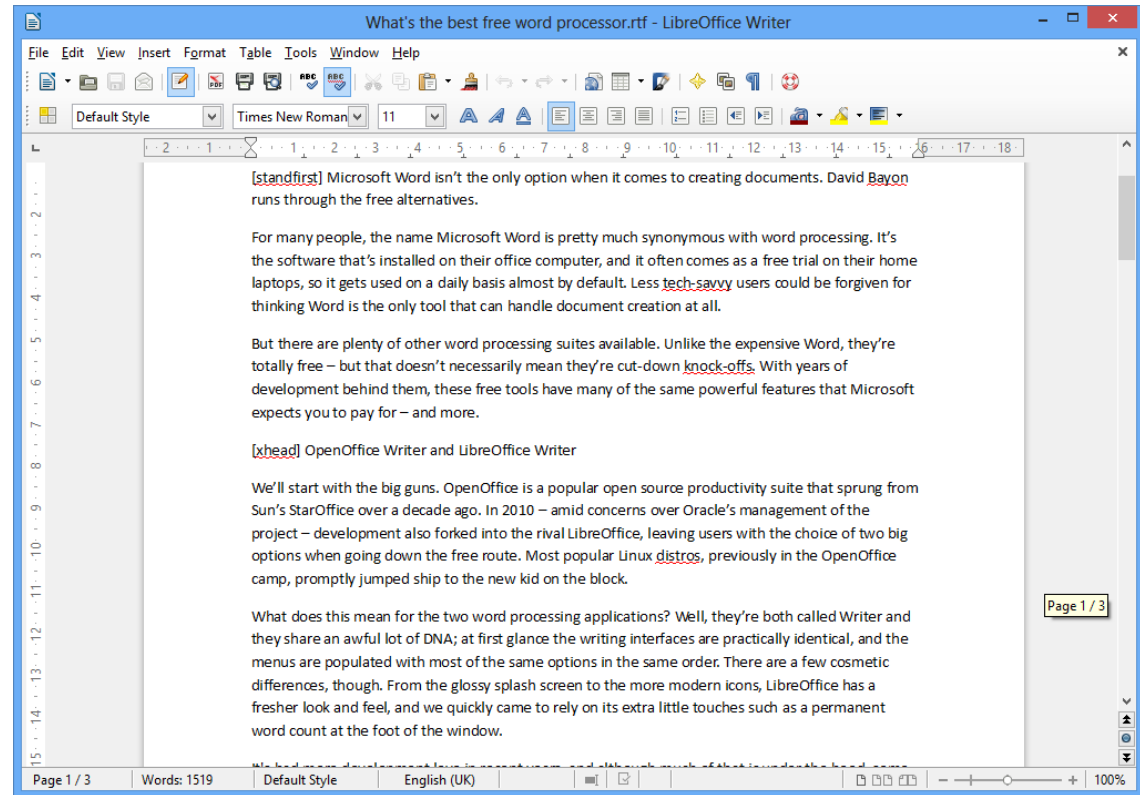
<https://www.youtube.com/watch?v=OBce25r8vto&feature=youtu.be>





# S = Substitution

- Tech acts as a direct tool substitute, with no functional change

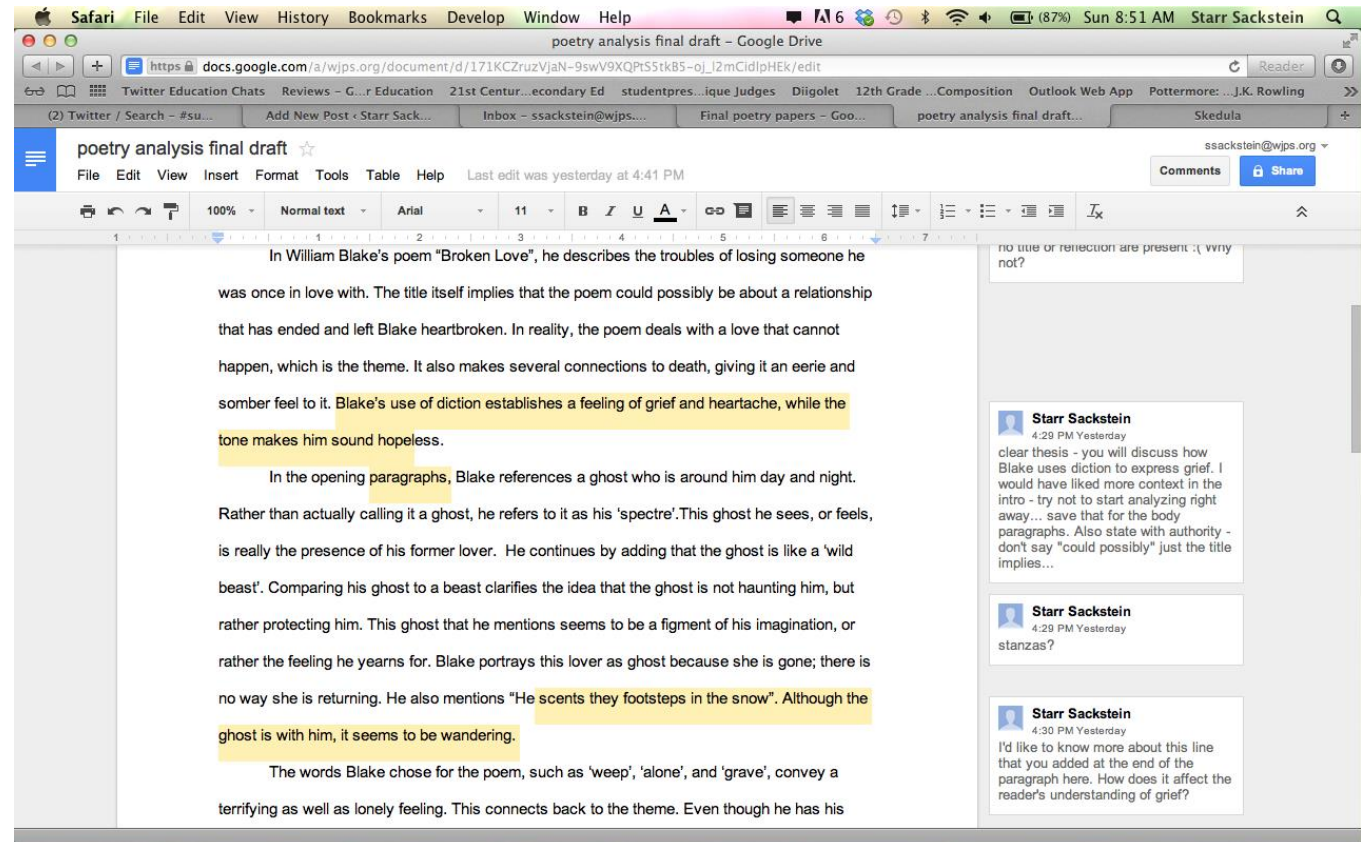






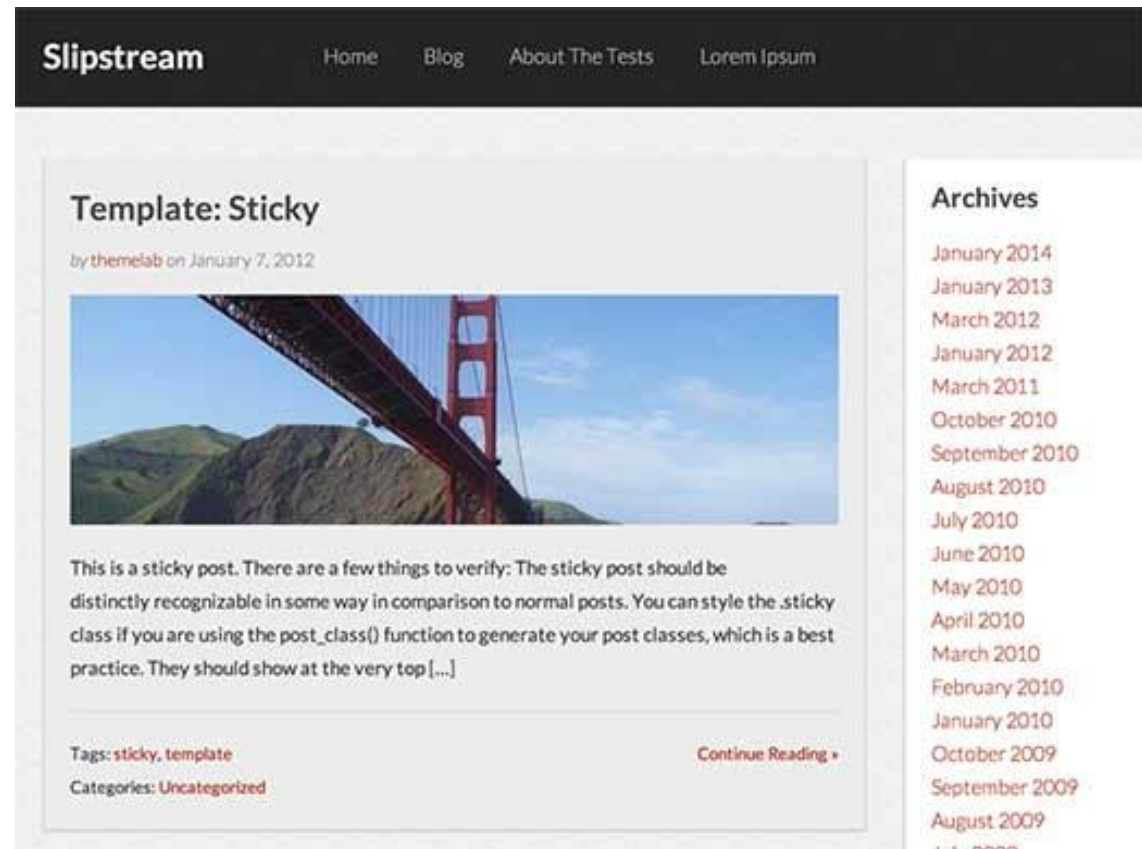
# A = Augmentation

- Tech acts as a direct tool substitute, with functional improvements



## M = Modification

- Tech allows for significant task redesign
  - Keys:
    - Collaboration
    - Analysis and evaluation (Bloom's)



## R = Redefinition

- Tech allows for the creation of new tasks, previously inconceivable
  - Keys:
    - Evaluation and Creation



# Online Research – Wikipedia

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Website: <https://www.wikipedia.org>

Cost: Free

Tech Teacher device with browser

Needs: Student devices (optional)

Setup: No setup required



Articles about accuracy of Wikipedia:

Live Science: <http://www.livescience.com/32950-how-accurate-is-wikipedia.html>

The Atlantic:

<http://www.theatlantic.com/technology/archive/2012/02/does-wikipedia-have-an-accuracy-problem/253216/>



# Online Research – Google Earth

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Website: <https://www.google.com/earth/explore/products/>

Cost: Free

Tech Needs: Computer and connection to Internet  
OR

Smartphone or tablet and iOS or Android App

Setup: For desktop: go to link and download and install software

For smartphone or tablet: download app



# Content/Games/Assessment – BrainPop

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Website: <https://www.brainpop.com>

Cost: Some Free Content  
\$220 for single teacher account  
School, District and State pricing also available

Tech Needs: Teacher device connected to Internet  
AND/OR  
Student devices – 1 per student or small group

Setup: Create teacher account / Create student accounts  
(optional)  
Buy subscription (optional)



# Video Lessons – Khan Academy

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Website: <https://www.khanacademy.org>

Cost: Free

Tech Teacher device with browser

Needs: Student devices with Internet access

Setup: Create teacher account  
Create student accounts (via email or class code)  
Assign subject  
Follow progress



# Video Conversations – Mystery Skype

Website: <http://mysteryskype.com>  
<https://education.microsoft.com/skypeintheclassroom>  
Get started video:  
<https://education.microsoft.com/connectwithothers/mysteryskypeonenote>

Cost: Free

Tech: Teacher computer/device with browser  
Needs: Projector/TV screen for display  
Web camera connected to computer

Setup: Create web account  
Find





# Virtual Reality – Google Expeditions

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Website: <https://www.google.com/edu/expeditions/#about>

Cost: Free (Hardware required – see below)

Tech: Android/iOS smartphones and/or tablets

Needs: Google Cardboard or other virtual reality headset  
Peer-to-peer Wi-Fi network

Setup: Create web account  
Create assessments  
Provide assessment code to students



# NearPod – NearPod VR

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Website: <https://nearpod.com>

Cost: Free (Hardware required – see below)

Tech Any devices with Internet connections

Needs:

Setup: Create web account  
Find or create lesson  
Provide code to students



# Digital Portfolio – Seesaw

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Website: <http://web.seesaw.me>

Cost: Seesaw Basic: Free  
Seesaw Plus: \$120/teacher/year

Tech Teacher device with browser  
Needs: Student devices – 1 per student (small group or 1 to 1)

Setup: Create teacher account  
Students sign in using class QR code  
Parents can sign in using QR code



# Assessment - Plickers

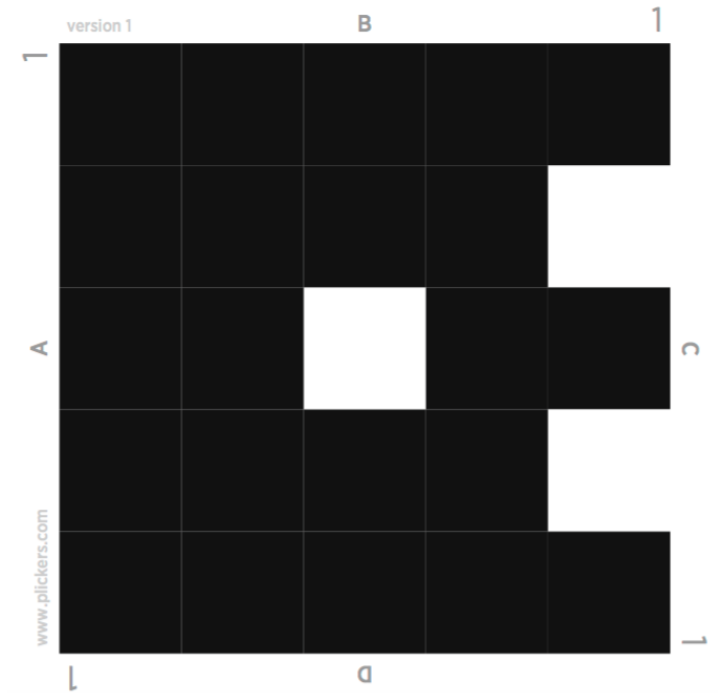
Website: <https://www.plickers.com>

Cost: Free (cost of paper and toner for cards)

Tech Teacher iPhone/Android Smartphone/Tablet

Needs: iPhone/Android App

Setup: Print cards  
Create web account  
Create assessments  
Add students to class(es)



# Assessment Game - Kahoot

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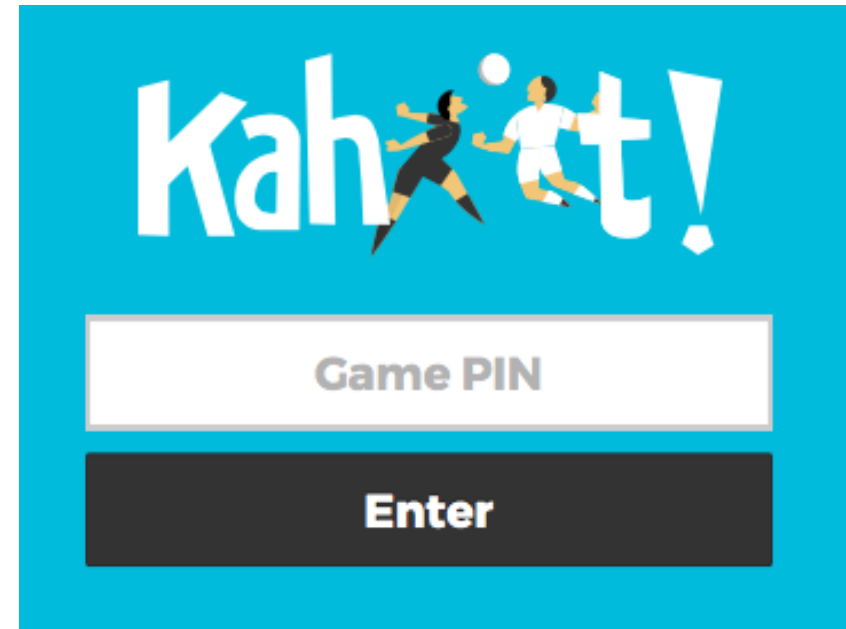
Website: <https://getkahoot.com>  
<https://kahoot.it/#/>

Cost: Free

Tech Teacher device with browser

Needs: Student devices – 1 per student (small group or 1 to 1)

Setup: Create web account  
Create assessments  
Provide assessment code to students



# Content Creation – YouTube Channel

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Website: <https://www.youtube.com/user/teachers>  
<https://www.youtube.com/education>  
  
<http://www.safeshare.tv>

Cost: Free

Tech Teacher device with browser

Needs: Student devices – 1 per student (small group or 1 to 1)

Setup: For creating channel for class: create teacher account (if don't already have)



# Content Creation – Apps

Website: Not applicable

Cost: Free to low cost

Tech iOS or Android smartphones/tablets  
Needs:

Setup: Download apps  
Create accounts if needed

Strip Designer



Puppet Pals 2



Toontastic



iMovie



# Gamification - ClassCraft

Website: <https://www.classcraft.com>

Cost: Teacher account: free to \$8/mo – also school district pricing

Tech Needs: Teacher computer

Setup: Go to ClassCraft.com and set up free account.





# Game Based Learning – MinecraftEDU

Website: <https://education.minecraft.net>

Cost: \$1-5 per user depending on size of school

Tech Teacher computer (Windows or Mac)

Needs: Student computers (Windows or Mac)  
MinecraftEDU software

Setup: Install MinecraftEDU on student computers



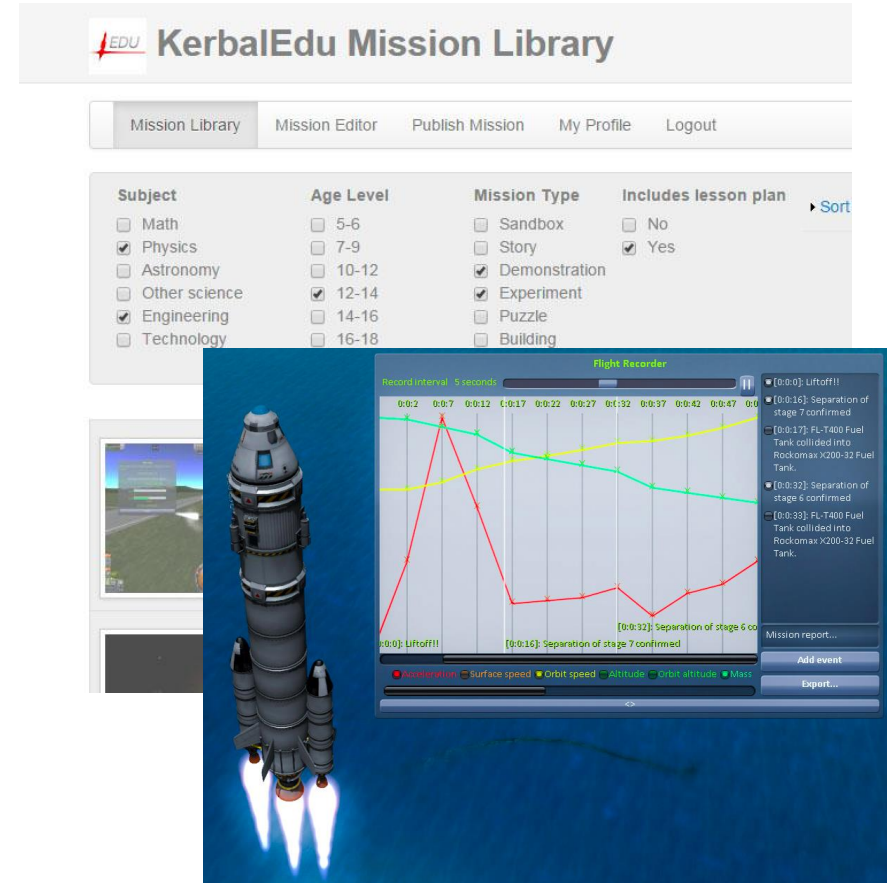
# Game Based Learning – KerbalEDU

Website: <http://kerbaledu.com>

Cost: \$17 per license (\$330 per 25 licenses)

Tech Needs: Student computers (Windows, Mac or Linux)

Setup: Download software to computers



**KerbalEdu Mission Library**

Mission Library | Mission Editor | Publish Mission | My Profile | Logout

Subject	Age Level	Mission Type	Includes lesson plan
<input type="checkbox"/> Math	<input type="checkbox"/> 5-6	<input type="checkbox"/> Sandbox	<input type="checkbox"/> No
<input checked="" type="checkbox"/> Physics	<input type="checkbox"/> 7-9	<input type="checkbox"/> Story	<input checked="" type="checkbox"/> Yes
<input type="checkbox"/> Astronomy	<input type="checkbox"/> 10-12	<input checked="" type="checkbox"/> Demonstration	
<input type="checkbox"/> Other science	<input checked="" type="checkbox"/> 12-14	<input checked="" type="checkbox"/> Experiment	
<input checked="" type="checkbox"/> Engineering	<input type="checkbox"/> 14-16	<input type="checkbox"/> Puzzle	
<input type="checkbox"/> Technology	<input type="checkbox"/> 16-18	<input type="checkbox"/> Building	

**Flight Recorder**

Record Interval: 5 seconds

0:0:0: Liftoff!!

0:0:16: Separation of stage 7 confirmed

0:0:17: FL-7400 Fuel Tank collided into Rockomax X200-32 Fuel Tank

0:0:32: Separation of stage 6 confirmed

0:0:33: FL-7400 Fuel Tank collided into Rockomax X200-32 Fuel Tank

0:0:0: Liftoff!!

0:0:16: Separation of stage 7 confirmed

0:0:32: Separation of stage 6 confirmed

Legend: Acceleration, Surface speed, Orbit speed, Altitude, Orbit altitude, Mass

Mission report... Add event Export...



# Coding – Code.org

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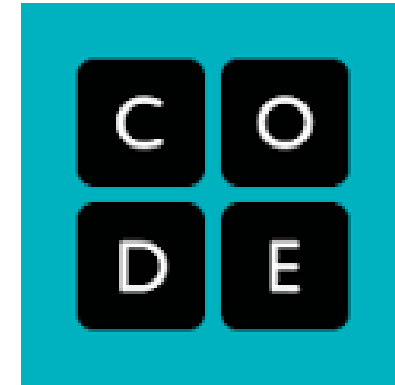
Website: <https://code.org>

Cost: Free

Tech Teacher device with browser

Needs: Student devices – 1 per student (small group or 1 to 1)

Setup: Create teacher account  
Create students accounts to track progress



# Coding – Scratch, Scratch Jr.

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Website: <https://scratch.mit.edu>  
<https://scratch.mit.edu/educators/>  
<http://www.scratchjr.org>

Cost: Free

Tech Teacher device with browser

Needs: Student devices – 1 per student (small group or 1 to 1)

Scratch Jr. for younger students requires iOS or Android devices

Setup: Create teacher account  
Create student accounts  
For Scratch Jr., download apps on devices



# Coding – Swift Playgrounds

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Website: <https://www.apple.com/swift/playgrounds/>

Cost: Free

Tech Teacher iPad

Needs: Student iPads – 1 per student or small group

Setup: Teacher and students download free application  
from iOS App Store  
Teacher



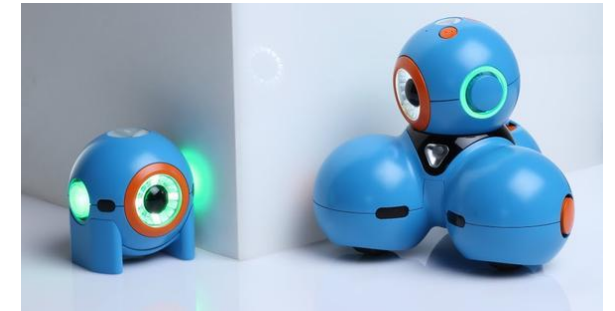
# Robotics – Dash & Dot

Website: <https://www.makewonder.com>

Cost: Dash - \$49.99; Dot - \$149.99; other accessories vary

Tech iOS or Android device to program and control  
Needs: robots  
(see website for compatible tablets)

Setup: Purchase robots  
Download app  
Connect app to robots



# Robotics – Sphero

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Website: <http://www.sphero.com>

Cost: \$129.99 and up

Tech iOS or Android smartphones or tablets to program  
Needs: and control robots

Setup: Purchase robots  
Download apps  
Sync Robots to devices



# Robotics – Lego Mindstorms

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Website: <http://education.lego.com/en-us/middle-school/shop/mindstorms-ev3?CMP=KAC-EDUS16MarBingShopEV3>

Cost: \$379.95 and up

Tech Needs: Computer or tablet for programming

Setup: Purchase robot(s), curriculum, etc.  
Download software or app(s)





# Questions?

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# Thank you!

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