

vidcode

**Computer Science in the Core Classroom –
Innovative Teaching Practices**

JavaScript & Creative Coding

```
playbackRate = 7;  
runVideo(playbackRate);
```



```
respond('thanks!');
```



MEET THE TEAM

Expertise in computer science, design and education



Alexandra Diracles, CEO



Melissa Halfon, CTO



Leandra Tejedor, Product



- **Mission:** Provide an accessible and engaging way for all students to learn computer programming
- Reached **over 550K students** online and in person
- Appropriate for **3rd-12th grade** students
- Used by **non-technical** teachers
- **Web-based.** No downloads required



Creative Coding



Dr. Mae Jemison, Astronaut

```
1 // A sample video for your Black History Month resea
2
3 movie = stopmotion();
4
5 movie.frames = ["Mae-jemison.jpg", "Mae_Jemison_in_S
6
7 movie.interval = 800;
8
9 var box = rect(0,300,movie.width,100,"black","clear"
10
11 var title = text("Dr. Mae Jemison, Astronaut",40);
12 title.font = "Oswald";
13 title.y = 300;
14 title.color = "pink";
15
```



AR



Video Filters



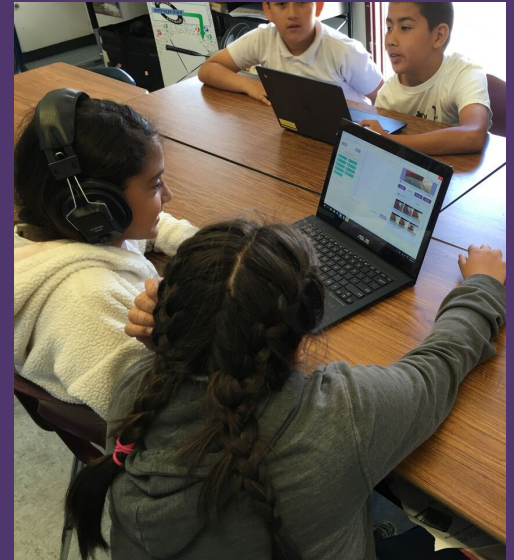
Memes

With creative coding, students:

- bring their own media,
- create projects they care about

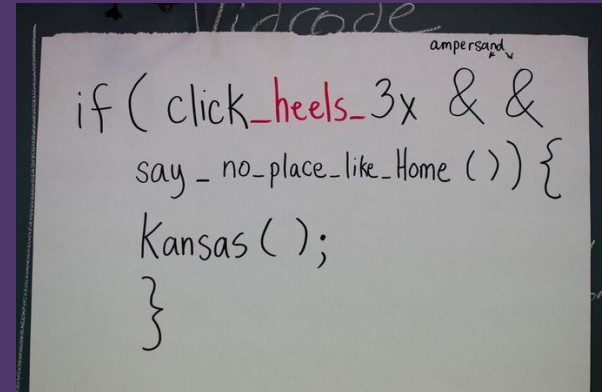
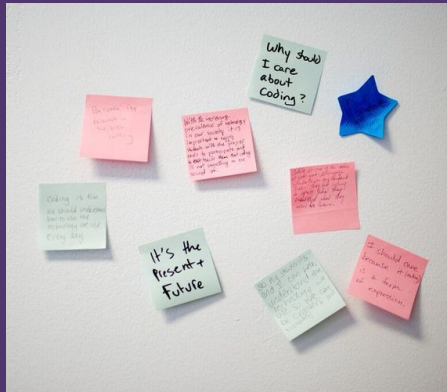
Increases:

- student engagement
- the number of 'non-traditional' students who identify as programmers



Teacher Training

Work with teachers to incorporate computational thinking activities into their existing lesson plans



K-12 Pathway

K-5

Creative Coding 1
Creative Coding 2
Creative Coding 3
APCSP



CUPERTINO UNION
SCHOOL DISTRICT

6-8

Creative Coding 1
Creative Coding 2
Creative Coding 3
APCSP



9-12

Creative Coding 1
Creative Coding 2
Creative Coding 3
APCSP

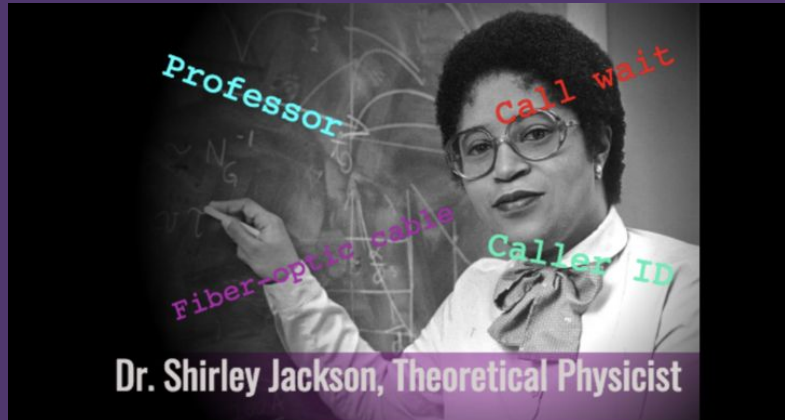


MAYFIELD SENIOR SCHOOL
of the Holy Child Jesus



Cross-curricular Activities

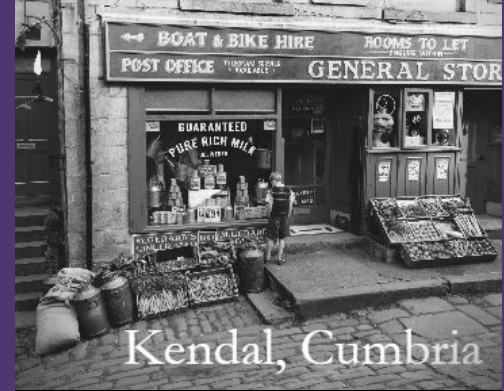
- Activities that replace a PowerPoint, research paper or poster session, and combine research with a computer science activity.
- These can be created with tools like Vidcode
- Guides and lesson plans are available at vidcode.com



```
1 movie = image();
2 movie.source = "Dr.-Shirley-Jackson.jpg";
3
4
5 var my_rect = rect(0, 300, movie.width, 100, "purple", "clear");
6
7 my_rect.opacity = .5;
8
9 vignette(60);
10
11 var my_text = text("Dr. Shirley Jackson, Theoretical Physicist");
12 my_text.color = "#D8D0D0";
13 my_text.size = 33;
14 my_text.font = "Oswald";
15
```

Ms. Milbourne's 6th grade English class

- 12-13 students per class
- Collaborated with art teacher
- Created postcards from the 1930s representing places in Arthur Ransome's *Swallows and Amazons*



Kendal, Cumbria



Coniston Water



Carnival



Carnival

<https://app.vidcode.io/share/1H2cvvgzux>



<https://app.vidcode.com/share/YPpdJN1KEy>



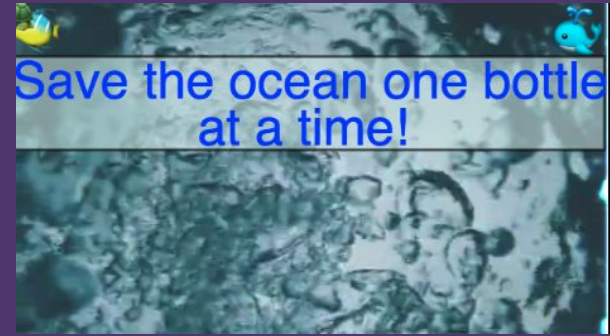
<https://app.vidcode.io/share/jdZonuvk6d>



<https://app.vidcode.io/share/F00S0fNMN4>



<https://app.vidcode.io/share/MJvI8V1BHa>



<https://app.vidcode.io/share/czihWVbQpc>

SUPPORT THE

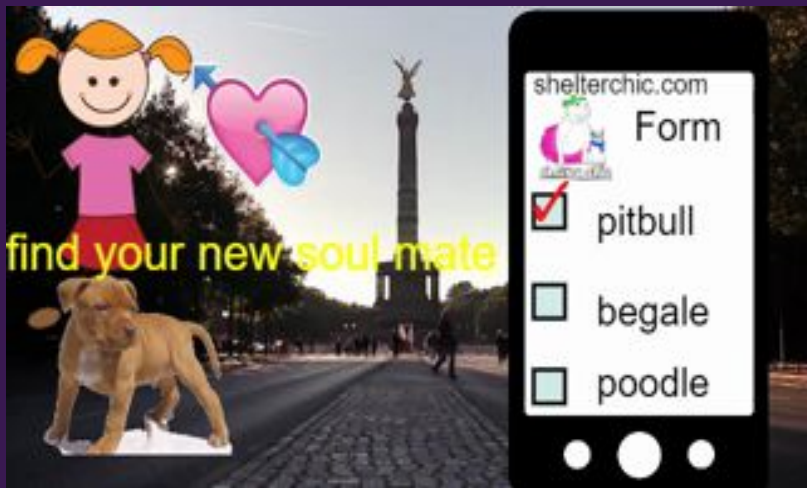


ASPCA

For more information visit [ASPCA.org](https://www.aspcanet.org)



```
2
3 var hotline = vignette(20);
4
5 repeat(function(){
6     if(movie.currentTime> 22.22){
7         hotline.amount -=10;
8
9     } else if (movie.currentTime> 20.68){
10    > hotline.amount +=10
11    }
12 }, 1);
13
14 var my_audio = audio("Shawn Mendes - Treat You Better
15
16 repeat(function(){
17     if(movie.currentTime> 4.13){
```



```
1  
2 var my_graphic = graphic("image2");  
3  
4 my_graphic.scale=0.25  
5 my_graphic.x=400  
6 my_graphic.y=3  
7 var my_graphic2 = graphic("logo");  
8 my_graphic2.scale=0.4  
9 my_graphic2.x=415  
10 my_graphic2.y=59  
11 var my_text=text("shelterchic.com");  
12 my_text.size=20
```

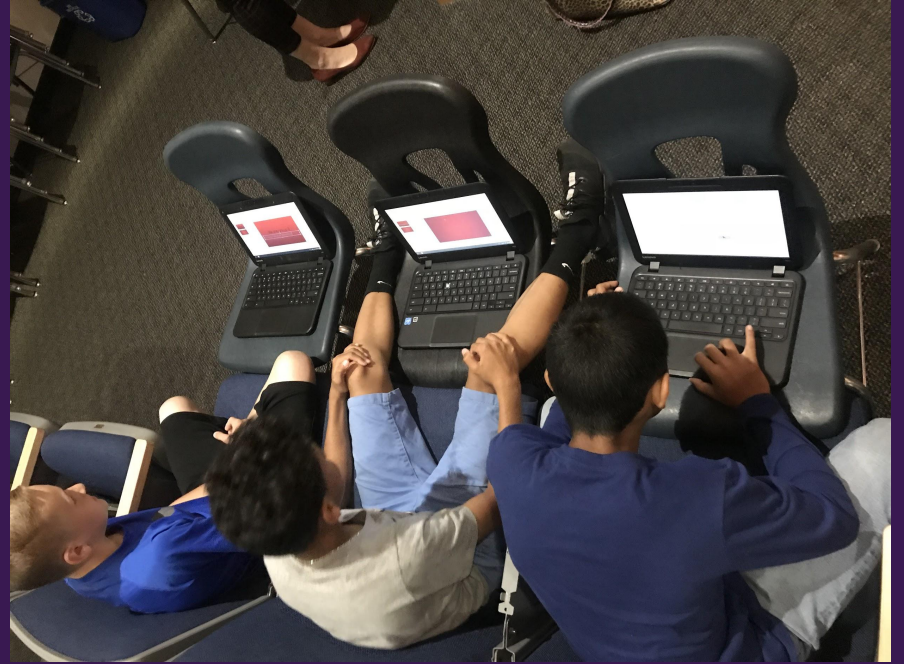
Case Study: 6th Grade Hackathon

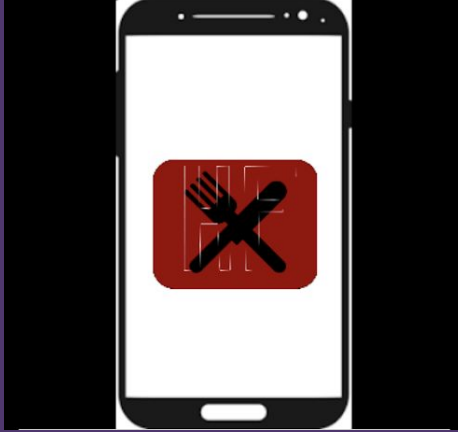
Highland Falls Hackathon

Students researched ways to improve traffic to local stores

- **Day 1:** Doing introductory coding tutorials
 - **Day 2:** Organized into teams, trip to town, talked to local businesses
 - **Final day:** Brainstormed solutions from their data
 - **Final day:** Coded projects presenting their solutions and prototypes to judges
-





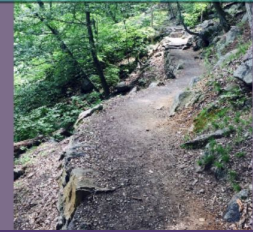


<https://app.vidcode.com/share/uvtBcXTv1c>



<https://app.vidcode.com/share/tU9ZW9VX0k>

How we plan to bring in customers
Well first we'll start by looking at Bear Mountain!



<https://app.vidcode.com/share/HW04tMUwVu>

Highland Falls Hackathon

- Worked collaboratively - had to work together to find solutions based on evidence
- When would I use code? How does this connect to real life?



Case Study: Breaking the Code

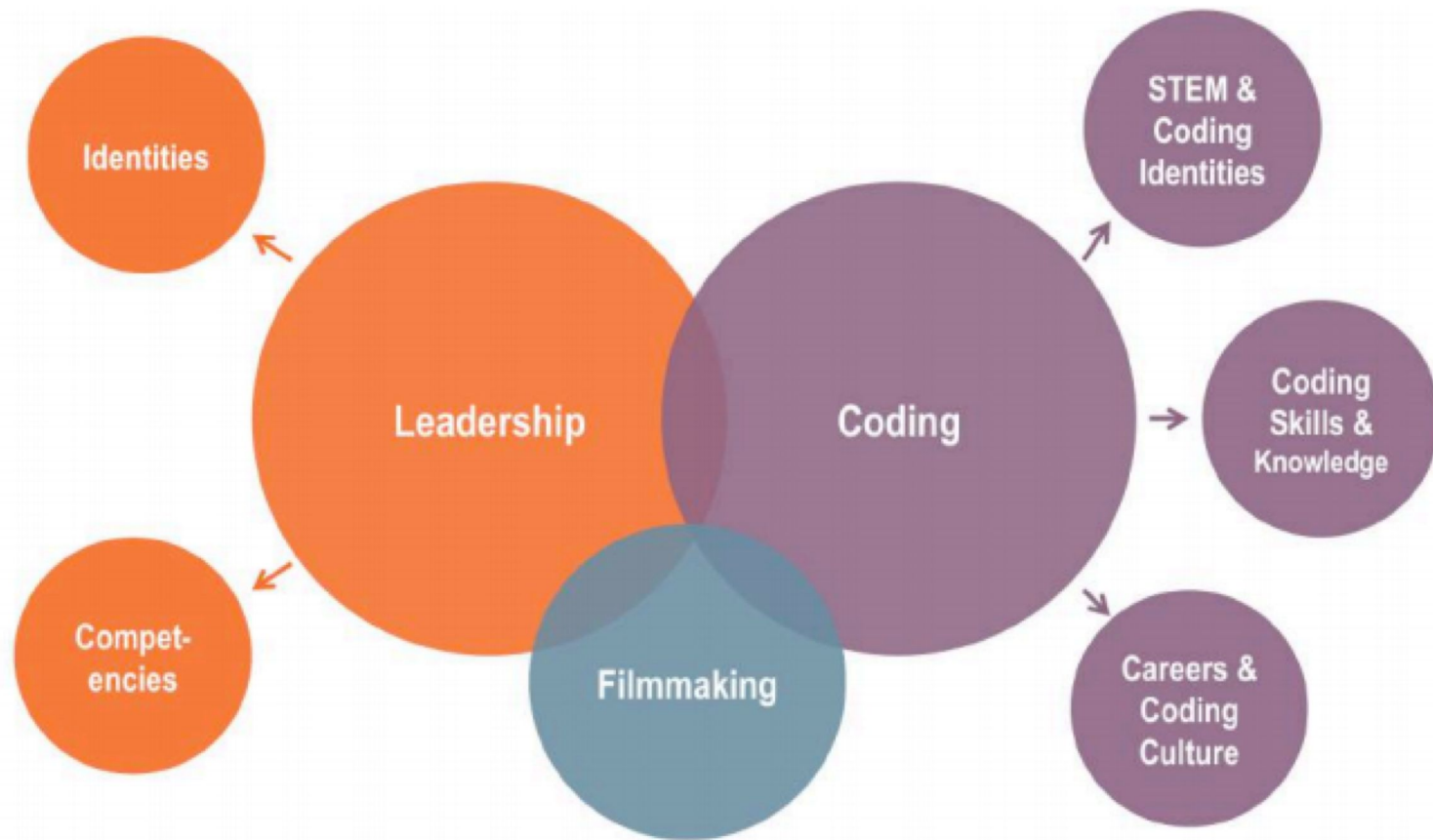


Figure 2. Primary activities (in large circles) and target outcomes (in small circles) for Breaking the Code.



Let's STOP littering! 🗑️🌍

```
1 movie = video();
2 movie.source = "IMG_0818.MOV";
3 var my_rect = rect (0, 290, 630, 65);
4 var title = text ("Let's STOP littering! 🗑️🌍");
5 title.y = 290;
6 title.x =45;
7 title.color = ("#068919");
8 my_rect.color = "pink";
9 title.font = "oswald";
10
```

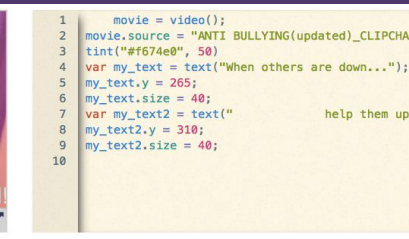
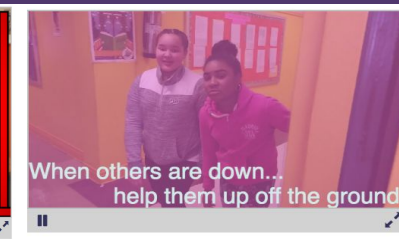


smoking is dangerous quit now while you still can!!! Call 511 for help

```
9
10 repeat(function() {
11     if (movie.currentTime > laserStart && movie.currentTime
12 my_drawing.x=0;
13     } else {
14 my_drawing.x=1000;
15     }
16 }, 5)
17
18 var my_text=text ("smoking is dangerous quit now while you s
19 my_text.size=25;
20 my_text.font= "oswald";
21 my_text.y=150;
22
23 textStart=35;
24 textEnd=65;
25
```

The Impact: Today

- Increasing confidence and abilities in STEM
- Generating positive exposure to computer science
- Transforming perspective and identity



The Stereotypical Newsstory

Anti-Bullying PSA - Jaliz, Yacin, Aliyah, Francheska

The Impact: Tomorrow

- Every company is becoming a tech company
- Carving professional pathways for all students
- Altering the opportunities for women and POC in technology



Positive Growth in Leadership Competencies

- o Problem-solving & compromising
- o Observed gains in confidence
- o Did not see themselves as role models or change agents initially...

...thought their projects could **teach about identity & assumptions**



Outcomes

Survey Questions	Before	After
Confidence in their coding abilities	37%	89%
Identify as programmers	42%	89%
Thought of themselves as “technology people”	58%	79%

bit.ly/mncodes-poster

■ Let's code!

As you do this activity, brainstorm how it could be integrated into another subject area.

Use media you find online to make an example!

■ Try it yourself

app.vidcode.io/project/end-plastic-pollution

app.vidcode.io/courses/free

Getting started guide + lesson plans

bit.ly/nvcs-vidcode