Telling the Story

Learning through stop-motion animation

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iCreate to Educate
Our students have really rich, creative, and complex ideas! How can we help them express and work with these ideas? What tools help them unlock their imagination?
Stop-motion animation - what is it?

Frame by frame animation
Still images combine to convey motion
Think of a digital flip-book

Control of space and time
Explore the “unseen” and “untouchable”
How do seeds become trees?

Molecular motion as a function of temperature
9th Graders, N.H.

4th Graders
Quantitative approaches

Applying those ideas...
Where the Wild Things Are
When you build in the world, you build in your mind.

Learning is rich and fun, when learning is adequately difficult.

Only you can share how you see the world.

Science of SAM Animation

**Constructionism**
- When you build in the world, you build in your mind.

**Flow**
- Learning is rich and fun, when learning is adequately difficult.

**Representation**
- Only you can share how you see the world.

**Engagement**
- Learning in ways that are relevant to you makes learning “worth it”.

**Story**
- Imagination is unlocked through telling your story.

**Time**
- Animation is thinking about the past, present and future.
Klutz Book of Animation released - featuring SAM Animation

Klutz has released a new book called "The Klutz Book of Animation", which features SAM Animation. We proudly endorse the book as a great way to learn techniques and uses for stop-motion. The animation ideas within the book are creative, fun, and certain to motivate any reader to become a master animator! Check out the book website, and download SAM Animation now!
And now it’s your turn!

Cycle-stories...a repeatable event - it starts and ends in the same place
The Cycle of Seasons
Ways of using SAM Animation

- Insights
- Predictions
- Lab Reports
- Story Telling
Insights

Using animation to elicit students’ ideas

Simple Circuits

Electric circuits

Geometric models
Predictions

Animation becomes a model of expected results, both conceptual and quantitatively.

It worked!

The 7 Meter Drop...
Lab Reports

Explain the results of an experiment with a stop-motion animation

Animation allows students to show things they can’t see or touch

Animations become teaching tools

The Dissolution
Tap into creativity and expression

Engage your students through ownership

Gain a unique, alternative understanding of what your students know

Turning “off” gravity
What can I do with all these movies?
Your students have made a great movie....now what?

1. Science talks with animations
2. Time Lapse
3. Making thinking visible
4. Revisions - Ladder of Feedback
Science Talks

Facilitated conversation around a question

• Questions are generative - not yes/no
• Ask for opinion, encourage evidence
• Establish norms - respecting your classmates; “I agree”, “I disagree”

Making thinking visible

What is changing?

Visible Thinking; Project Zero
http://www.pz.harvard.edu/vt/index.html
Matrices
Predicting frames

What’s coming next?

Retelling the story
Time Lapse

Watching ice melt...

Time = 0.0 min
Time Lapse

Crystalization

CO₂ production by yeast
Time Lapse

Why does this happen?
Revisions

"The whole of science is nothing more than a refinement of everyday thinking." A. Einstein

How could our movie be improved?

“Ladder of Feedback”
Dreaded “Test Prep”

Physics - Work/PE

Bio - Blood Flow

Math - Triangles

Chem - Salt Dissolution
THANK YOU!

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