Stop-Motion Animation
Digital storytelling in the classroom

BY DAN GRANT

The challenge

I love movies and I love books. I have always thought that movies were an excellent way to engage students – particularly boys – in literacy. I decided to use digital storytelling tools and techniques to actively engage my students in telling their stories.

As a result of work they did in media literacy classes, my students became excited by stop- or slow-motion animation film. After discussions, the class and I decided that a stop-motion animation project was something that everyone would enjoy and get a lot out of. That this project would be new ground for all of us, me included, motivated and empowered my students.

The students' challenge was to create two stop-motion films, fiction and nonfiction, over the course of the school year. They also were to produce a 60-second public service announcement about the importance of healthy eating and a healthy lifestyle.

My challenge was to coordinate 28 students working in small groups on different stop-motion projects at the same time and in the same place.

Setting the stage

Curriculum expectations

As a homeroom teacher teaching my own core mathematics, literacy, science, and social studies, I am able to develop lessons that combine the various subject areas. This project also cut across different curriculum expectations, and by not restricting my students to isolated periods of instruction I was able to use my classroom time much more effectively. (For specific curriculum expectations, see the sidebar on page 21.)

Although created for a grade 5 class, this project could be modified to meet the expectations of other grades. I am currently using this strategy with two Intermediate classes and have received positive feedback on this approach from secondary school consultants.

Dan Grant is a grade 5 teacher with the York Region District School Board. He has shared his digital storytelling activities through ETFO's *Innoteach* project and took part in a Literacy and Numeracy Secretariat webcast on nonfiction writing.

Spiderwick
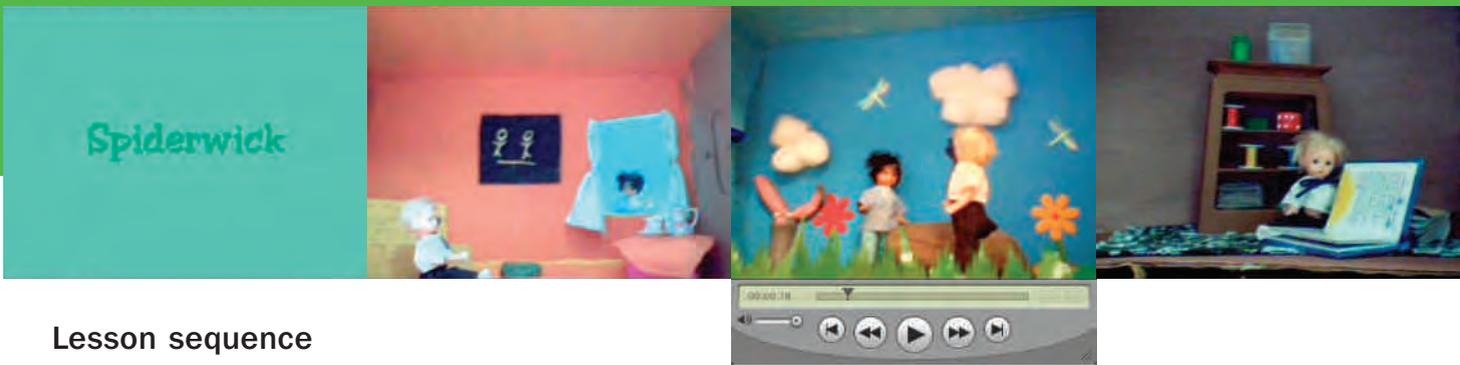
Lesson sequence

1. Developing media literacy skills

Before we began, we spent a fair bit of time examining the language and techniques of film. We also identified the three stages of creating a film: preproduction, production, and postproduction.

Initially, students estimated that 20 percent of their time would be spent in preproduction activities, 60 percent in production, and 20 percent in postproduction. When they were finished, they revised their assessment: preproduction took up 75 percent, production 10 percent, and postproduction 15 percent, which shows that students underwent a substantive change in their understanding of the importance of planning and preparation.

I scaffolded their learning in much the same way that I did when they were learning how to write fiction and nonfiction texts. I had started the year using *6+1 Writing Strategies* and I wanted this learning to be reflected in their project. I made connections between the filming process and literacy throughout the year and found that students were better able to relate to their literacy studies as a result.

Students learned how to analyze the techniques media professionals use to get across their ideas and influence consumers and spectators. When we spent time analyzing print advertisements and television commercials, students became engaged. The commercials for Sony Bravia televisions featuring Plasticine bunnies in New York City and the one with colourful balls were very popular *(adsoftheworld. com/media/tv/sony_bravia_bunnies* and *adsoftheworld.com/ media/tv/sony_bravia_balls)*. What is great about these commercials is that Sony provides interviews and a behind-the-scenes look at the ideas behind the commercial and the media messages. This commercial got students excited about doing their own stop-motion piece. I happened to have quite a bit of Plasticine in the classroom, and I allowed the students to explore how to shape and create with it.

To help understand storyboards we looked at filmmakers' storyboard meetings. Movie DVDs often have storyboards as an additional feature and we looked at storyboards from *Spirited Away, Shrek, The Incredibles,* and *Wallace & Gromit: The Curse of the Were Rabbit.*

Students were able to see that professionals had to brainstorm and sell their ideas to their peers. This created an opportunity to discuss the importance of oral communication skills and how they relate to real-world activities. Next, students watched a Participaction commercial and drew a storyboard based on it. *(en.wikipedia.org/wiki/Participaction)*

2. Using audio to express mood and emotion

We discussed the effective use of voice, music, sound, and special effects. Students watched movies and television shows to appreciate the importance of sound in establishing mood and atmosphere and took part in skits to demonstrate the use of sound and voice.

To practise digital storytelling skills, students created an audio recording that combined a short piece of narration and music. They received a copy of "The Great Detective Story" by Stephen Leacock and a handout (page 23) describing the creation of an audio recording using Audacity, a free, easy-to-use recording and editing software (available at *audacity.sourceforge.net)*.

I modelled how to read the story with meaning and effect while recording it in Audacity. The software illustrates the voice track, and students were very interested in seeing what it looked like. I then imported a music track into the narration.

The Freeplay Music website *(freeplaymusic.com)* provides music samples in .mp3 and .aac formats that educators and students can download for free for educational purposes.

Students narrated and recorded their own version of "The Great Detective" choosing appropriate music, a process they really enjoyed.

3. Stop-motion animation: preproduction

Students created two stop-motion animation projects during the school year: a nonfiction project that explained the concept of equivalent fractions (a curriculum unit they had recently completed) and a sequel to the *The Spiderwick Chronicles.*

Working in small groups, they brainstormed ideas and created rough scripts and storyboards. They were instructed to include as much information as possible in their first storyboard, including group roles and responsibilities, props, and titles. Students pitched their ideas to me and I provided feedback and suggestions, which they incorporated. Students then pitched their stories to their classmates, who provided
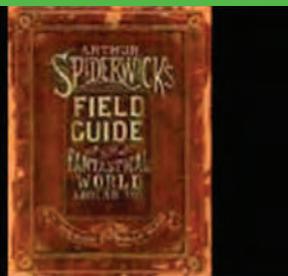
additional feedback that they also incorporated into their final storyboards.

4. Stop-motion animation: production

I wanted to give all of my students a chance to actively participate in the stop-motion filming process. But how would I manage class time and resources? What software and hardware would I need to create films for a web or video iPod?

I discussed these questions with the students, so that they would get a sense that this was no small undertaking. Ultimately I decided on webcams, which connect directly to a computer's USB port, and I bought six of them and 10 microphones on eBay for about $100. This meant a number of groups could work on their projects at the same time and most importantly at their own pace. The webcams proved to be pretty rugged and worked extremely well.

We chose to use MonkeyJam, a freeware application that allows users to capture images from a webcam, camcorder or scanner and assemble them as separate animation frames. *(www.giantscreamingrobotmonkeys.com/monkeyjam/download.html).*

I begged and borrowed computers from around the school, set up the software, and showed students how to use it. I gave them a lot of creative freedom and time to explore their ideas.

5. Stop-motion animation: postproduction

Students exported the completed film files to Microsoft Movie Maker and added titles, music, and special effects. Students already knew how to use Movie Maker and completed this stage in about two to three periods.

Curriculum Expectations

Mathematics
- Read, represent, compare, and order whole numbers to 100 000, decimal numbers to hundredths, proper and improper fractions, and mixed numbers
- Demonstrate and explain the concept of equivalent fractions, using concrete materials

Writing
- Generate, gather, and organize ideas and information to write for an intended purpose and audience

Media Literacy
- Create a variety of media texts for different purposes and audiences, using appropriate forms, conventions, and techniques
- Reflect on and identify their strengths as media interpreters and creators, areas for improvement, and the strategies they found most helpful in understanding and creating media texts.

Arts – Drama
- Solve problems through drama and dance, working in large and small groups and using various strategies
- Use different forms of available technology to enhance work in drama and dance
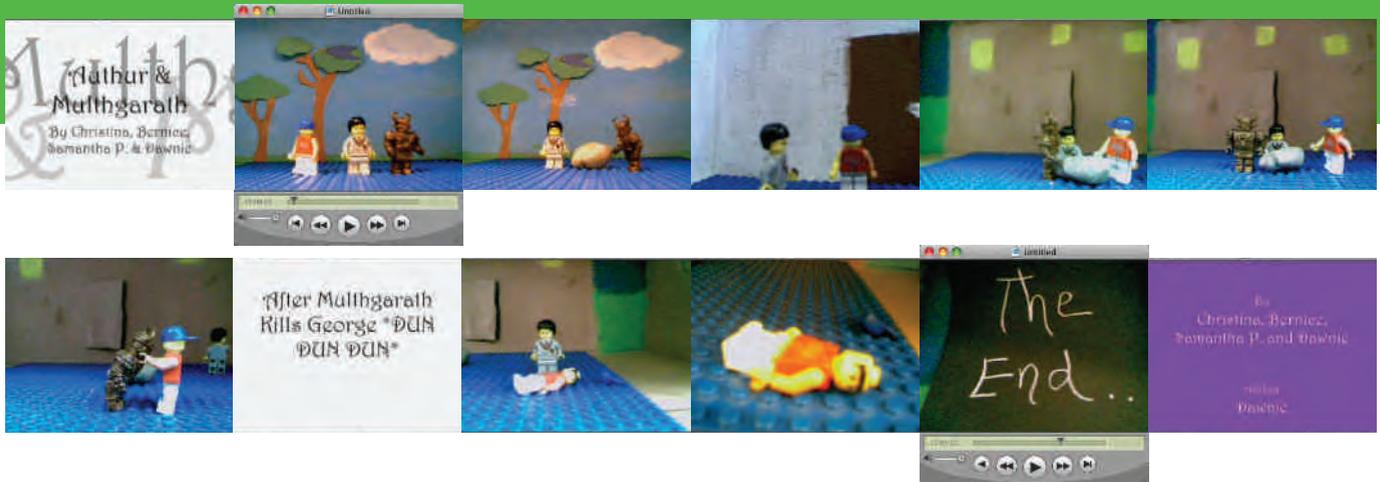
Accommodations and assessment

I created rubrics that I used to guide and assess the students. To meet the differing student needs in my class I made the following accommodations:

- Teacher-selected work groups paired students of differing abilities to facilitate peer support .
- Direct teacher support and instruction was provided as needed.
- Support staff helped with storyboard clarity and timelines.
- Colour-coded expectations were clearly visible in the classroom.
- Project information, instructions, and assignment due dates were posted on the classroom blog.
- Students received differing amounts of time to complete each stage.

Resources

Black, Holly and Tony DiTerlizzi. *The Spiderwick Chronicles.* New York, New York: Simon & Schuster, 2004.

Culham, Ruth. *6+1 Traits of Writing: The Complete Guide.* Scholastic Inc. Available at *shop.scholastic.com*

Fryer, Wesley A. "Stories to Go" in *TechEdge,* Winter 2007, 24-26.

Généreux, Annie Prud´homme and William A. Thompson. "Lights, Camera, Reflection! Digital Movies: A Tool for Reflective Learning." *Journal of College Science Teaching,* July 2008, 21-25.

Herrington, J., and L. Kervin. "Authentic Learning Supported by Technology: Ten Suggestions and Cases of Integration in Classrooms." *Education Media International* 44(3), 217-36.

Kervin, Kristy. "Explaining the Use of Slow Motion Animation as a Teaching Strategy to Develop Year 4 Students' Understandings of Equivalent Fractions." *Contemporary Issues in Technology and Teacher Education* 7(2), 100-106.

Outcomes and student reflections

This activity effectively extended student learning. All of the software and hardware was easily accessible to students at home. It was interesting and satisfying to see students bring to class and share their own independent stop-motion films. Students who typically were not fully engaged in classroom activities were among the most enthusiastic participants who went off in their own filming directions.

Equipment and materials

- Microsoft webcams
- Windows-based HP notebook computers
- microphones
- Microsoft Movie Maker
- Audacity recording software
- MonkeyJam digital pencil test program that is also suitable for creating stop-motion movies
- storyboard planning sheets – see the sidebar
- variety of art materials – Plasticine, construction paper, markers, etc.
- simple animation props – Lego bricks, small dolls, toy cars, stuffed animals
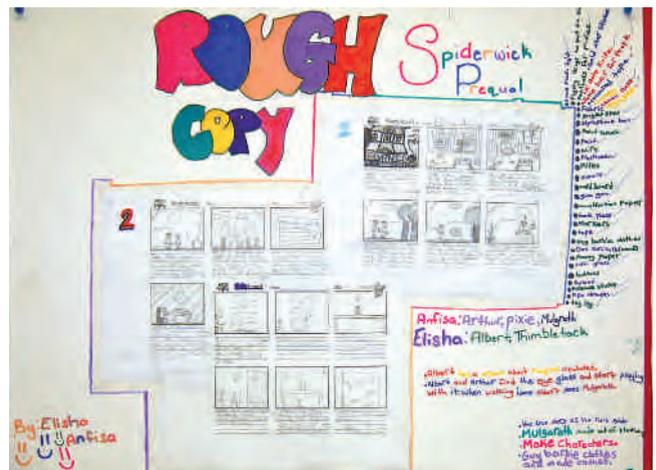
Student Handout
Document à remettre aux élèves

Recording Your Audio Tracks

Audacity software allows you to create audio recordings with multiple soundtracks that could include narration, music, and audio effects. Audacity merges these tracks into a single file that can be played on an MP3 player or on Microsoft Media Player. The free Audacity software and MP3 utility download can be found at *audacity.sourceforge.net*.

You should create your own audio recording independently. Work with Audacity to record a short piece of text. *It is important to rehearse* reading the text with inflection and meaning before recording it.

Your recording is saved as an .aup file that must be exported as either a .wav or .mp3 file before it can be opened in a media or MP3 player.

The next step is to select a music track from Freeplay Music that reflects the mood and feel of the passage you have chosen. Add special sound effects to your recording to make it even more interesting and engaging.

1. **Rehearse** reading the passage.
2. Record passage using Audacity.
3. Under **File** pull down menu **Save project as...** recording in **My Documents** using a name that is unique, for example, mr grant passage 1. It is *highly recommended* that you save the project onto a memory stick.
4. Locate mood music on Freeplay Music – *freeplaymusic.com.*
   Do not use copyrighted materials (music or videos from established artists such as Usher or the Jonas Brothers).
5. Select and save a track that roughly equals the length of the narrated passage.
6. Under the **Project** pull-down menu, click on **Import Audio Track** to import it into your narrated passage.
7. Check your sound levels to make sure one part doesn't drown out the other. You can also make changes to the track at this time.
8. Optional: add other audio tracks, such as sound effects.
9. **Save Project.** It wouldn't hurt to save it on a memory stick as well as on the computer.
10. **Export as a .wav file.** This will merge your recording into a single audio track. You could export this as an .mp3 file but it takes an extra step and will require a utility.
11. Your recording is complete. Your file can now be opened using Windows Media Player and can be imported into other programs such as Microsoft Movie Maker or PowerPoint.

Enregistrement de vos pistes audio

Le logiciel Audacity vous permet de réaliser des enregistrements multipistes pouvant comprendre de la narration, de la musique et des effets sonores. Le logiciel Audacity fusionne ensuite les différentes pistes en une seule pouvant être écoutée à l'aide d'un lecteur MP3 ou du Lecteur Windows Media de Microsoft. Vous pouvez télécharger gratuitement le logiciel Audacity et des utilitaires MP3 depuis le site *http ://audacity.sourceforge.net.*

Vous devez entièrement créer votre propre enregistrement sonore par vous-même. À l'aide d'Audacity, enregistrez la narration d'un court texte. *Il est important de vous exercer à* lire le texte avec l'intonation et l'emphase voulues avant de l'enregistrer.

Votre enregistrement est sauvegardé sous forme d'un fichier .aup qui doit être ensuite exporté en tant que fichier .wav ou .mp3 avant de pouvoir être lu par un lecteur MP3 ou multimédia.

La prochaine étape consiste à choisir une pièce musicale de Freeplay Music qui reflète l'atmosphère et l'émotion du texte choisi. Vous pouvez ajouter des effets sonores particuliers pour rendre votre enregistrement plus intéressant et plus vivant.

1. **Exercez-vous** à lire le texte choisi.
2. Enregistrez-le à l'aide du logiciel Audacity.
3. Sous l'onglet **File,** enregistrez votre pièce avec la fonction **Save project as...** dans le répertoire **My Documents** avec un titre particulier, par exemple, « m. granger passage 1 ». *Il est fortement recommandé* de sauvegarder une copie de l'enregistrement sur une clé USB.
4. Recherchez une musique d'ambiance sur le site Web de Freeplay Music – *freeplaymusic.com.*
   N'utilisez pas de pièces musicales protégées par droit d'auteur (musique ou vidéos d'artistes populaires comme Usher ou les Jonas Brothers).
5. Choisissez une pièce qui a environ la même durée que votre narration et sauvegardez-la.
6. Dans le menu déroulant **Project,** cliquez sur **Import Audio Track** pour la transférer dans votre enregistrement.
7. Vérifiez les niveaux sonores pour éviter qu'une des pistes ne masque l'autre entièrement. À cette étape, vous pouvez aussi modifier la piste.
8. Étape optionnelle : ajoutez d'autres pistes audio, comme des effets sonores.
9. **Sauvegardez votre projet.** Il est conseillé de sauvegarder votre projet à la fois sur l'ordinateur et sur une clé USB.
10. **Exportez votre piste en tant que fichier .wav.** Ceci fusionnera vos différentes pistes sonores en une seule. Il est possible de l'exporter en tant que fichier .mp3 mais cela nécessite une étape supplémentaire et un utilitaire.
11. Votre enregistrement est terminé. Votre enregistrement peut dès maintenant être lu à l'aide du logiciel Lecteur Windows Media et peut être ensuite exporté dans d'autres logiciels comme Movie Maker ou PowerPoint de Microsoft.

Dan Grant has shared his digital storytelling activities through ETFO's Innoteach Project. For more information see the Voice – February 2009 article, [Innoteach: Using technology for professional learning](#).