

Mathematician Spotlight

Students teaching students by creating their own videos



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Introduction

Everyone wants to be in the spotlight once in a while. You want to be the star. Your students want to be the star too. Let your students have a chance. This is my attempt to do so. The arrangement is to put responsibility, tools and a plan in their hands. Their reward is confidence, a sense of accomplishment, peer accolade, and in some ways lessons they may never forget.

Mathematician Spotlight is simply a task for students to create a short video of a teaching objective. Selected students are given an assignment, rules of operation and a digital camera for a few sessions a week. Using popular free video production software they can piece together still frames and videos to create a polished product. The video they create is later presented by the teacher to introduce or supplement a new concept.

Mathematician Spotlight was changed to suit my new position as the science teacher last year. The entire concept still operates as *Science Shorties* just with different content. You may see references to *Shorties* in this handout; it is the same premise. The three years of experience I've had with this has added value.

This project is low budget, yet a high tech experience. A digital camera and your projector is the only big cost. The software you use is free. Access to the internet is necessary, but that resource should be available to you at work or the local library.

There is a fear factor involved, but it is from the teachers not the students. Eleven year old students are now posting videos on *YouTube.com* already. So ask the kids in the upper academy to help if you forget a keystroke or click.

Applications

Immediate usage for the videos:

- To introduce or supplement a lesson
- To reinforce a concept at a later date or before assessments
- School wide viewing during Math Week
- Leaves good impression during Open House night

Long term usage:

- Videos can be amassed over time
- Viewing by siblings years later hold promise for motivation

Intrinsic:

- Peer acceptance
- Motivation for learning
- Self efficacy
- Responsibility

Classroom usage:

- Behavior management reward
- Team building
- Wholesome entertainment
- The “Wow!” factor



How to Get Started - part1

I will show you how I got *Mathematician Spotlight / Science Shorties* started. I can not guarantee if your results will be the same; I hope your results are better.

1. Ask yourself if you have the time or inclination to delve into something new. It may take more than five hours a week in the beginning.
 - a. See **Typical Video Lifecycle**
2. Ask your administration for approval to do this.
 - a. See sample form: **Sample Letter to Administration Asking to Initiate Project**
3. Get the materials needed. You can use all the forms I have created and modify it to suit your situation. Purchasing hardware and download software have implications beyond this body of work.
4. Ask your students' parents permission for their pupil to participate.
 - a. See sample form: **Sample Letter to Parents Asking for Student Participation**
 - b. If it is ok, get them to sign the Miami-Dade County Public Schools video release form: **FM-5703E (07-98)**
5. Familiarize yourself with Microsoft Movie Maker. It is easier than you think.
 - a. See: **Notes and Observations**
6. Account for all qualified, approved participants
 - a. See sample form: **Participant List**
7. Choose, in advance, a few lesson objectives that are within the wherewithal of your first set of students. Planning for a video a week is possible, but start by planning weeks in advance.
 - a. See sample form: **Activity Log**

How to Get Started - part 2

8. From your Activity Log, choose the first set of students and assign them roles.
 - a. See sample form: **Assignment**
9. Each student assigned a role must sign a compact of conduct.
 - a. See sample form: **Rules of Operation and Behavior**
10. **Teach them how to use the materials.** This is a major point in the process. You will have to show them how to:
 - a. Hold the camera
 - b. Take a still shot
 - c. Take a video
 - d. Copy or download the digital product to your editing computer.
 - e. Drag and Drop pictures, videos and audio files into *Microsoft Movie Maker*.
 - f. Edit and publish the video.
11. **Plan with your students.**
 - a. Get together and explain to them that using a script is easier than ad lib.
 - b. Show them the Production script, both sample and blank.
12. **Now you are ready to start!**

Optional:

If you have a color printer, take a student head shot and put that into the sample badges. The badges are purely optional, but do alleviate the need for constantly issuing hall passes. They sure look good!

Typical Video Lifecycle

Do not expect this scenario to happen the first time around. It will happen, quite surprisingly, within a month or so.

Monday:

Roles are assigned.

Judging on your pacing guide, a future objective is selected.

Your team gets together during a break/special time.

The team agrees on the topic and fills out the Assignment form.

Tuesday:

After lecture or during breaks assemble for 15 – 30 minutes of gathering props and still frame photography. Some students can find useful information and resources on the internet.

Wednesday:

Assemble for 15 – 30 minutes of video shooting.

Thursday:

Assemble for 15 – 30 minutes of video shooting and any other needed pictures.

Friday:

Take an hour to compile and edit video. I suggest Microsoft Movie Maker because it is free and easily understood by students. The students will be able to do this in a few minutes; the teacher has to give that all important guiding direction.

If the digital camera you chose does not record in the formats of **.avi** or **.wmv**, you will need to convert it to **.wmv** because Movie Maker handles it better. I suggest using Prism Video Converter. See the Materials section for further information.

Next Week:

Show video at the beginning of new lesson.

Materials

Hardware

Item	Quantity	Cost per Item
Any available brand of digital camera capable of photography and video	1 – 4	\$50 - 100
SD memory card 2 to 4 Gb	1 per camera	\$20 - 40
USB cables to connect to computer	2	Should be packaged with camera
A Laptop or PC capable of video editing. Any modern computer will do.	1-2	I use my desktop computer at work.
A projector Surface or overhead mounted	1	\$600 – 700 If you have a Prometheus or other interactive whiteboard you probably already have one.
optional Blank CD or DVD's	50	\$20

Software

Item	Quantity	Cost per Item
Prism Video Converter	1 per computer	Free download from publisher: http://www.nchsoftware.com/prism
Microsoft Movie Maker	1 per computer	Free download from publisher http://www.microsoft.com/windowsxp/downloads/updates/moviemaker2.mspx
** MacBook computers ship with video editing software free**		

Sample Letter to Administration Asking to Initiate Project

Principal,
Assistant Principal,

August 30, 2010

I have been working on the “*Science Shorties*” project for this year and have come up with a couple of ideas. This year I want to group 1-4 (carefully chosen 5th grade) students and assign them tasks in which they will photograph or video record science curriculum related events or objects outside of the classroom.

1. Working as a team, I want them to display a badge/hall pass when they do.
2. A folder with assignment instructions will be in their possession at all times. Included in their assignment the rules and policies for photography and camera usage. Participants will acknowledge by signature.

As with last year’s effort, well behaved students will be grouped by mixed ability. All students recorded will have a video release form on file. All videographers, and the camera(s), will not leave the school grounds or wander into the dangerous areas. They may be assigned to research with other teachers and staff. And lastly, I edit all the materials to conform to the MDCPS conduct and ethics before releasing.

If there is any comment or constructiveness you have, please share.

Attachments: Example badges and assignments

Kerry Mathews

Sample Letter to Parents Asking for Student Participation

DATE

Dear Parents and Guardians,

I am grateful to teach your student this year. Thank you for all the effort and support you have given your student up to this point. We are serious on having our students learning effectively through the school year and wish for your continued support.

This year I have been given a grant from *The Education Fund*. The Ed Fund promotes innovative and exciting methods of teaching. My principal has given me the opportunity to try an idea I have. The project I am working on is called *Name of your Project*. In it, selected students will compose a short two to five minute presentation on a science skill and then record it digitally. This process is structured and will follow set guidelines. Your student may use any practical tools (rulers, protractors, scales, etc.), drawings, or spoken word to convey the lesson - creativity is essential. This digital recording will only be replayed in class as part of that week's lesson. In essence your student/scientist will be in the spotlight teaching a lesson. I believe that this project will produce:

1. A creative outlet for scientists
2. Classroom responsibility
3. Student ownership of the learning process
4. Social acceptance and cultural awareness

To have your student participate in this project, I will simply need your permission. Please sign this release form if you choose to permit your student to participate.

Thank you for you time.

Teacher Name
My School

Science Shorties

Participant List

Mr. Mathews

Bunche Park Elementary – MDCPS

2010

Student's Name	Received Permission	Age / Gender / Grade	Additional Information
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	

Notes: _____

Science Shorties

Activity Log

Mr. Mathews

Bunche Park Elementary – MDCPS

2010

Week of: _____

Activity: _____

Video label: _____

Participants Name	Participants Action	Dates / Times	Video Recorded	Video Shown
1	1			
2	2			
3	3			
4	4			
1	1			
2	2			
3	3			
4	4			
1	1			
2	2			
3	3			
4	4			

Notes: _____

Science Shorties - Assignment

Date: _____

Researcher: _____

Research Assistant: _____

Photographer: _____

Video Director: _____

Today we need:

Topic or Idea	# of Examples	Close-up or Wide-angle	Photograph or Video	
		Close Wide	Photo	Video
		Close Wide	Photo	Video
		Close Wide	Photo	Video
		Close Wide	Photo	Video
		Close Wide	Photo	Video

Additional Notes: _____

Science Shorties - Rules of Operation and Behavior

Read these rules.

You will follow these rules.

If you choose to not follow these rules you will be excluded from future participation.

- **You must always be in the presence of a teacher, staff member or administration.**
- Only the photographer will handle the camera.
- The photographer will take photographs and videos only.
- The photographer has the highest responsibility for every assignment.
- Arguments and inappropriate behavior of the group are reported by the photographer.
- The researcher and research assistant must have a completed video release form.
- Researchers and research assistants have duties as demonstrators and performers.
- The researcher and research assistant must follow the directions of the video director.
- The video director is to cooperatively work with the photographer to create concise videos.
- The video director is responsible for gathering and returning props and materials.
- When there is no photographer available, the video director will have those duties.

Do:

Be creative. You were chosen because you have many talents, use them.

Act responsible.

Use a clear voice.

Smile.

Remember that you will be recorded, let everyone see you at your best.

Return the badge at the end of the assignment.

Don't:

Do not waste time.

Do not open or drop the video camera.

Do not take the camera anywhere unless you notify Mr. Mathews.

Do not delete photos or videos.

Always remember you may become famous one day. Show them how responsible you are.

By writing your name in the lines below you agree to the rules above.

1. _____

2. _____

3. _____

4. _____

Mathematician Spotlight

Contributor: The Ed Fund
Production Script

Mr. Mathews
Bunche Park Elementary – MDCPS
2010

Date: _____

Video Label: _____

Materials: _____

Script: (Attach any additional documents if needed)

Science Shorties

Production Script

Mr. Mathews

Bunche Park Elementary – MDCPS

2010

Date: TODAY

Video Label: SOLUTIONS

Materials: GRADUATED CYLINDER, SPOON, WATER, SUGAR, KOOL-AID MIX, JAR and SIGNS

Script: (Attach any additional documents if needed)

[Introduce yourself]

I am going to explain what a **solution** is.

[Hold up sign]

A **solution** is a combination of two or more substances where one is dissolved by the other.

[Pick up jar]

This is an empty jar.

[Pick up jar with g. cylinder]

There is water in this graduated cylinder. It is a liquid of course.

The water will be our **solvent**.

[Pour water into the jar]

[Pick up sugar]

This is sugar. This will go into the jar. It is the **solute**. It will get dissolved.

The water will dissolve it.

[Pour sugar into the jar]

[Stir water in jar]

[After dissolving, hold up jar]

See. The sugar is dissolved. This is a **solution**.

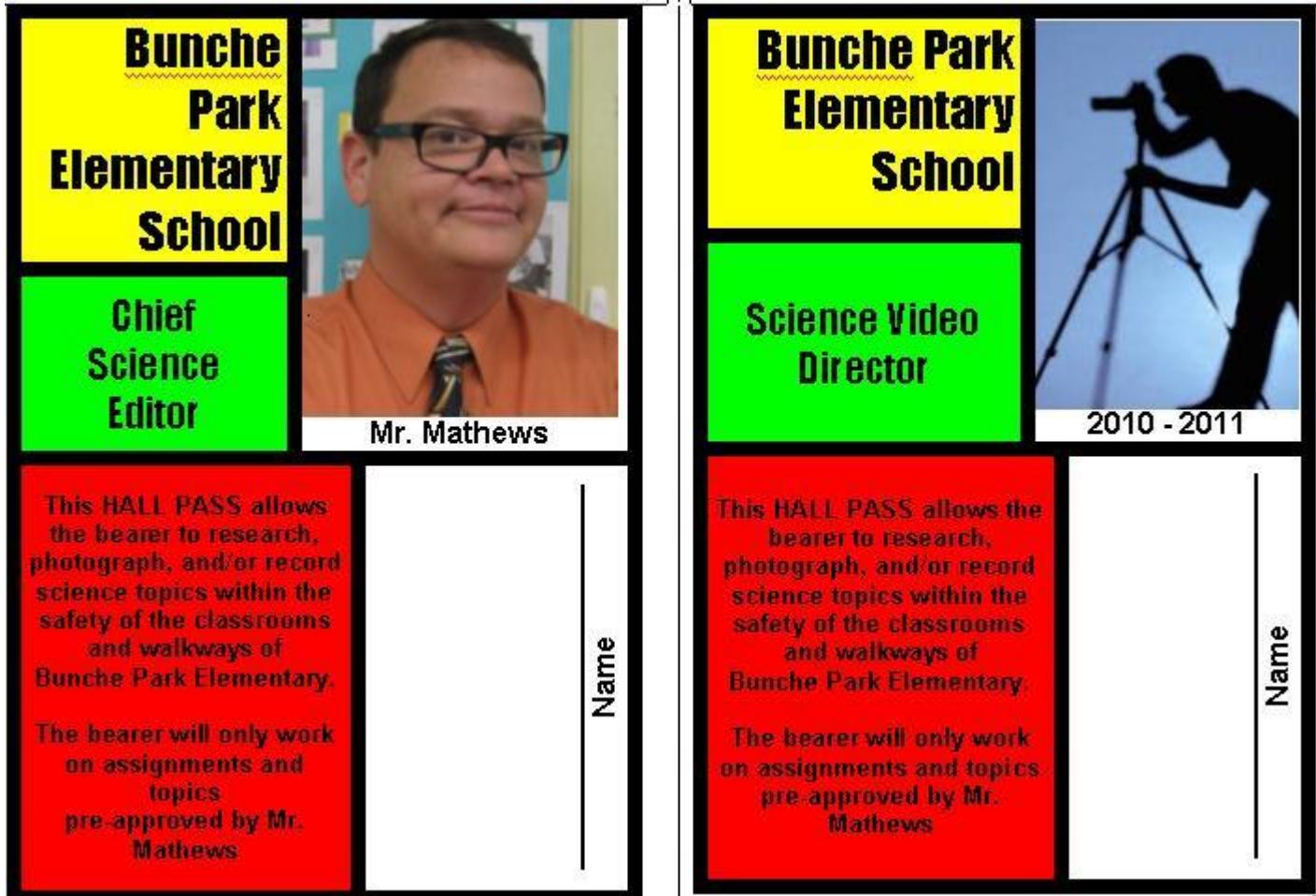
Can solutions have more than one **solute**?

[Pick up kool-aid powder]

Guess what this is?

[Stir in kool-aid] * * * Now this is a solution. [End]

Sample “Official Badges”



In my school, I have the face of the student where the blue photographer is.

The badge folds in half and is inserted into a clear plastic badge holder and is clipped onto the collar or pocket.

Notes and Observations

- If you need additional assistance contact me. 279361@dadeschools.net
- You may evaluate your digital camera for a day or two to become comfortable with downloading or copying files.
- Using any new computer software can become time consuming. Use this website to learn how to use Movie Maker:

<http://windows.microsoft.com/en-US/windows-vista/Getting-started-with-Windows-Movie-Maker>

- The first video seems hard to get. The second video is tens times easier.
- An interesting idea popped into my head: In a K-8 center, eighth grade students could teach fifth grade students how to make educational videos. In that scenario the role of video producer is dolled out to a (gen. ed., gifted) student interested in Education or Technology, and the teachers can reap praise. Someone run with that.
- Keep an eye on the equipment. Perhaps create a check-in/out log.
- Materials used in the demonstration of the lesson, like props and stages, can be made by other students not directly involved in the process. Also, get a tripod.
- When you edit and oversee what is being photographed, do not allow the faces of any student in view unless you are absolutely sure that there is a signed video release for that student.
- Avoid areas that are wet. No pools. No bathrooms. The camera does not swim well.
- Math is easier to understand when you see it applied. Taking the camera on a shopping adventure can produce a bundle of relevant examples.
- Teachers can record their own video. Think about that for a while. You should make the first video, of something that is hard to show in class like: how yeast makes air bubbles in bread.

References

Into the Book: Student Video. Retrieved September 1, 2010 from

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Acknowledgements

The Education Fund and Lorne Valle have given many teachers resources to reach students in many creative ways; I thank you for all the effort you have put into the success of my colleagues and I.

Rod and Lucy Petrey sponsored my original Teacher Mini-Grant; I thank you for allowing me to see my students reach higher.