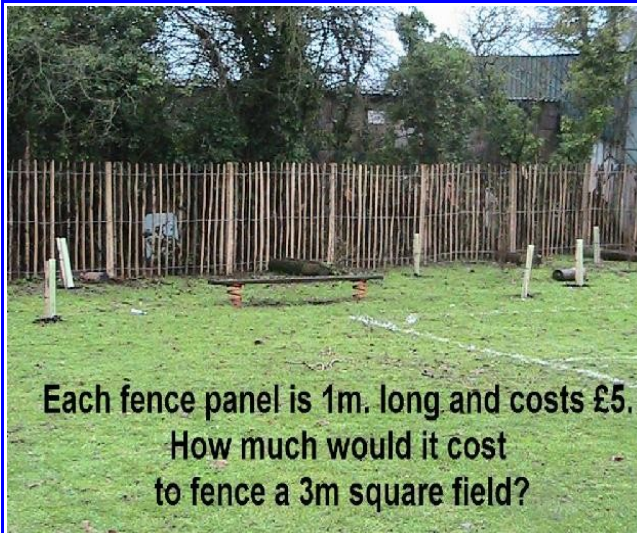
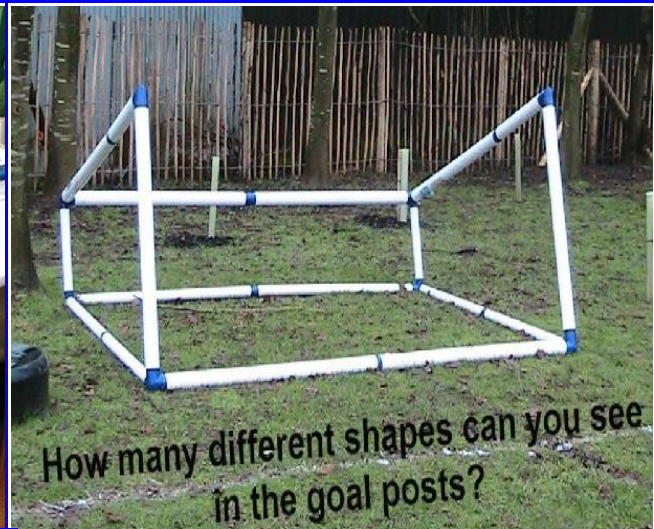


## Key Stage 2 Maths and ICT

### Maths in the School Grounds FlashMeeting Project



#### Why use web conferencing to develop pupil's mathematical skills and understanding?

Launched in autumn 2009, pupils in six Kent primary schools used digital cameras to photograph mathematical problems outside the classroom. Back in class they were set the challenge to select the best ten digital photographs and for each design a mathematical problem. The task completed the digital photographs were then uploaded and stored on "The FlashMeeting Memo Board" ready for their peers to view.

Report compiled by:

**Phil Bracegirdle (Ask ICT Hands on Support Consultant)**

**February 2010**

## Key Stage 2 Maths and ICT Project

### Maths in the School Grounds

#### An innovative project for Years 4 and 5 pupils

The **Maths in the School Grounds** project is a wonderful opportunity for Key Stage 2 pupils to use ICT to:

Display pictorial and written problems on an Interactive Whiteboard for their peers to solve

Plan and pursue an enquiry

Suggest extensions to an enquiry

Solve one-step and two-step problems involving whole numbers, shapes and units of measurement

Present information

Explain reasoning using diagrams, graphs, symbols and text



#### Project Overview

"Most of the schools in the project opted to give their able mathematicians (Maths Champions) the opportunity to photograph mathematical problems."

Launched in autumn 2009, pupils in six Kent primary schools used digital cameras outside the classroom to photograph real life mathematical problems. Back in school selected images were uploaded and stored on FlashMeeting. Web conferences were then booked and the pupils given the opportunity to display their chosen images. Each scheduled web conference lasted approximately 30 minutes. During the session the "Maths Champions" would display 10 to 15 images for their peers to view. Each image would be accompanied by a question. Pupils would be given 3 to 5 minutes to solve the problem. During that time questions could be asked and help given.



At the end of the session the web conference was replayed and paused at intervals to enable pupils to review and discuss their work. Comments added would be posted by the teacher in the FlashMeeting summary box. The session finished the edited FlashMeeting was then saved by the teacher for pupils and staff to replay and view again at a later date.

To view more examples of pupil's work from the project visit the **Ashford One Collaborative Area on The Kent Learning Zone.**

## What is FlashMeeting?

“A safe and secure way to conference online”



<http://FlashMeeting.e2bn.net/>

FlashMeeting is a simple to use desktop web conferencing application that requires no specialist equipment except a standard £30 - £40 webcam. Sessions involving two or more users are booked online and confirmation sent to the “bookers” e-mail address. On receipt of the e-mail the unique URL address for that conference is forwarded to all participating schools.



### Why use FlashMeeting in the Primary Classroom?

“So much more than traditional web conferencing!”

FlashMeeting can be used effectively to support whole class and group work. To support learning the application has a considerable range of tools that enable pupils to gather, present and share their work. These include:

A start and stop broadcasting button to clearly inform pupils when it is their turn to speak

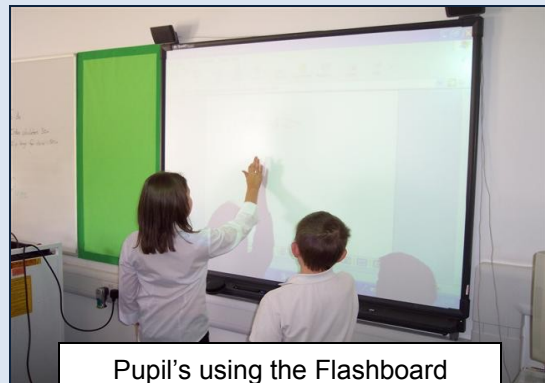
[A web chat box to type questions and responses](#)

An online voting tab to answer questions and join debates

[A URL link to display web pages on screen](#)

The FlashBoard to display images and text on a virtual whiteboard

[A replay facility to view previously recorded sessions](#)



Pupil's using the Flashboard

How can we use ICT to accurately assess pupil's progress?

The Flashboard was used during “The Maths in the School Grounds” project to display images for pupils to view on the classroom IWB. Throughout the sessions the pupils used the “pen” and “line” tools in the task bar to record their ideas. Viewing their peers working in another room the “Maths Champions” were able to ask further questions and provide assistance when required.

**A valuable assessment tool FlashMeeting enables staff to accurately review how well pupils:**

Use mathematical vocabulary

Apply known mathematical strategies

Work independently

Respond to the ideas and suggestions

Present and justify their answers when challenged by others

Use mathematical equipment to complete a task



# Maths in the School Grounds

## How can we use ICT to solve “real life” problems?

Planning to use web conferencing to record and assess pupil’s progress in maths? The diagram below explains clearly how ICT was used to support “The Maths in the School Grounds” project.

### How can we use ICT to solve “real life” problems?

Duration of activity



#### **Gathering Information**

Use digital cameras to photograph examples of “Maths in the school grounds.

#### **Designing the Peer Group Challenge**

Pupil’s to select photographs and create maths problems for peers to solve.  
Consider: age group, number of pupils, previous experiences using web conferencing, location of planned conference

#### **Teacher’s Task**

Upload and add photographs to the FlashMeeting Presenter Board.

#### **Preparing for the FlashMeeting Conference**

The pupil’s will need time in advance of the FlashMeeting to:  
Familiarise themselves with using the Memo Board  
Prepare helpful hints to share with their peers  
Find solutions to the problems they have set their peers

#### **Teacher’s Task**

Book FlashMeeting session and forward URL details to other classes/schools.

#### **The FlashMeeting Web Conference**

The session should last approximately 30 minutes. Ensure the PC/laptop is linked the class IWB.  
During this time pupils will have sufficient time to display 10 – 15 problems.  
Pupils must be reminded to use the Flashboard snapshot and send tools to record each other’s annotated work (answers and ideas posted on the classroom IWB.)



#### **Teacher’s Task**

Edit FlashMeeting  
Add support notes for pupils and staff.

#### **Review the FlashMeeting replay**

An opportunity for pupil’s to:  
Comment on each others work.  
Revise their solutions and identify next steps in learning.

1-3 weeks

1-3 weeks

## Using FlashMeeting in the Primary Classroom



We used digital cameras to photograph mathematical images outside the classroom.

How many cylinders can you see in this picture ?



We devised questions for each of the photographs.

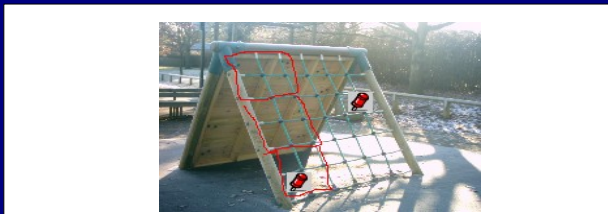
### FlashBoard Store

created/modified	file size			
05-Oct-07 17:42	44KB			
12-Oct-07 15:03	3KB	SIMS		

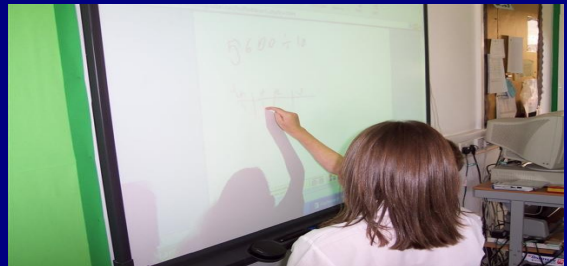
We uploaded and added our images in the **Flashboard store** and made a **Presentation**.



We took part in **FlashMeeting conferences** with pupils in our own and other local schools.



In the conferences we used **the flashboard** to display our problems for others to view.



We used the **flashboard tools** to record our ideas on the class Interactive Whiteboard.

03-12-09 Maths in the school grounds

snaps files url

00:54: bradley  
 00:57: chloe  
 00:58: jake  
 03:00: Auto-Snapshot 1  
 06:47: harry  
 09:00: Auto-Snapshot 2  
 11:14: chloe  
 12:00: Auto-Snapshot 3  
 15:23: jake  
 17:34: james  
 18:00: Auto-Snapshot 4  
 20:16: bradley  
 21:00: Auto-Snapshot 5  
 21:58: emily

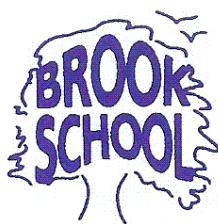
At the end of the session we used the replay facility to review the lesson together.



To view examples of our work visit the **Kent Learning Zone Ashford One** collaborative site.

## Maths in the School Grounds

### Impact on Pupil's Learning



#### What the teachers and pupils had to say.....

"Problem solving involves identifying and understanding the problem, planning ways to solve the problem, monitoring progress and reviewing the solution."

Our group of Maths Champions were set the task to take photographs of "Maths in the School Grounds and to create questions for their peers to answer. The FlashMeeting involved linking computers in the Years 5 and 6 Classroom and the school computer suite. The session lasted just over 40 minutes.

Following the activity staff interviewed the "Maths Champions" who created the questions and the Years 5 and 6 pupils who solved the problems. Read what they had to say about the activity.

#### The Years 5 and 6 Pupils

The overall consensus was that the experience was enjoyable and motivating because it was novel. There was mixed opinion about the level of difficulty of the questions (not surprising as the class is very mixed ability), though they did feel that everyone participated, and that this was positive. They almost unanimously agreed that they would like the opportunity to be the ones setting the questions. They thought it was good Maths practice and, for the more able ones, good revision.

#### Maths Champions:

Very much enjoyed the experience, in particular watching the replay. They particularly liked the questions where we drew on the board, as this made the most of the technology we were using.



#### Teacher

Undoubtedly the experience was positive for all the participants. The problem solvers were motivated by the technology to engage in the activity, and, significantly, had to verbalise their reasoning. They were all involved in discussing afterwards what did and did not make a good question. For the Champions, this was a wonderful opportunity to challenge these more able pupils in a variety of ways – identifying potentially useful images, developing questions around them, acquiring and practicing the necessary ICT skills, communicating their mathematical thinking to their peers, evaluating the questions and considering criteria for developing further questions.

#### What do we need to improve?

Some pupils commented that the pace of the lesson was a little slow. To resolve this maybe the Problem Solvers needed to work in groups? Working in groups would allow the able mathematicians to feedback their answers and work on the next problem instead of stay seated waiting for others to finish. To add pace to the activity we will need to consider the level and type of questions to ensure momentum (something for Champions to consider when developing next set of problems.) This could involve setting multi-part questions for all to attempt? Finally, many of the negative points mentioned could be addressed by there being fewer participants, of similar ability levels, which bodes well for the intended final activity of the project, linking small groups of able pupils in the different schools.



## Ham Street Primary

"The activity was an opportunity for our pupils to clearly explain their thinking using the correct mathematical vocabulary."

Following the activity we interviewed the pupils in **Walmer Class**. Here is what they had to say....

"Using FlashMeeting was not difficult. All you had to remember was when to use the start broadcasting button and load snapshot buttons to talk and display your photographs on the screen."

"I liked the activity because it was new and different. Seeing the photographs on the screen helped me solve the problems."

"We did lots of maths. Lots of problems about counting numbers and spotting 2 and 3 D shapes!

"Some of the problems were hard. It helped being able to work with others. Talking to my friends I was able to finish all the questions."

"Some of the questions were very hard. In the questions with the leaves I had to do lots of multiplication sums."

"It was good in the replay watching others."

"Watching the FlashMeeting replay was great! We could see where we had gone wrong



### Next Steps

Following the sessions described in the report the schools plan next term to take part in joint FlashMeetings. These sessions will last approximately 1 hour and involve groups of Gifted and Talented mathematicians from each school. Split in to twenty minute slots the pupils will have the opportunity to present their own questions and work out the challenges set by others.

Prior to the FlashMeetings taking place the schools will e-mail each other to agree the areas of focus. Time will also be set aside for the G&T groups to photograph more examples of maths in their school grounds and local community.

**Edited versions of these FlashMeeting replays will be posted on Kent Learning Zone in late March 2010**

**For more information about the project click on the web-links below:**

FlashMeeting User Guide (pdf)	<a href="http://microsites2.segfl.org.uk/library/1266489122/FlashMeeting_sep3.pdf">http://microsites2.segfl.org.uk/library/1266489122/FlashMeeting_sep3.pdf</a>
Hamstreet Primary FlashMeeting (10.2.10)	<a href="http://FlashMeeting.e2bn.net/fm/fmmp.php?pwd=309b4b-8718">http://FlashMeeting.e2bn.net/fm/fmmp.php?pwd=309b4b-8718</a>
Brook Primary FlashMeeting	
Kent Learning Zone	<a href="https://portal.klz.org.uk/">https://portal.klz.org.uk/</a>

### **List of participating Schools**

Godinton Primary	Lydden Primary Schools
Brook Primary School	Priory Fields School
Hamstreet Primary School	River Primary School

### Maths in the School Grounds Project

Use this recording sheet to focus on a child during the **FlashMeeting web conferences**. It lists the **NS skills (Maths AT1)** that could be covered during the project. **What skills does she/he bring to the task? Observe her/him again after a few weeks. What skills are now demonstrated?**

Using and Applying tasks Skills Observation sheet			Name:	Date:
Theme As identified by PNS	Demonstrated through:	Baseline: what skills did the child use when first observed? <i>Tick</i>	Notes	Skills demonstrated after focussed teaching and learning
<b>Representing</b>	Recording			
	Jottings			
	Checking			
<b>Enquiring</b>	Planning			
	Deciding			
	Organising			
	Interpreting			
	Reasoning			
	Justifying			
<b>Reasoning</b>	Applying			
	Predicting			
	Hypothesising			
	Testing			
<b>Communicating</b>	Explaining: -methods and solutions			
	-choices			
	-decisions			
	-reasoning			