



Fibonacci Project Ireland: Schools' Report, 2010-2011



Deep in discussion.



Testing parachutes made from different materials.



Fibonacci Ireland Coordinators



Fibonacci Teachers



Recording results.



Investigating sound.



**And most important
of all.....
The Fibonacci
Students!!**

What is this Fibonacci Science Project all about?

It's a new way of approaching the subject of science. When learning about the Nature of Science the teachers and students will be discussing and working on:

- What science is;
- How scientists work;
- Creativity and innovation in science;
- The history of ideas in science;
- Science, technology and society;
- Science in the media.



www.fibonacci-project.ie



***European Fibonacci Project gives a
boost to the teaching of science
in primary schools***

Throughout Europe, there has been concerted moves to enhance the profile of science in schools and to promote scientific literacy for all. The Primary Science Curriculum was brought in to foster such ideals here in Ireland and teachers are familiar with the positive experiences that children can gain from hands-on science. However, teaching science in a primary school classroom still presents challenges.

The Fibonacci Project is a new EU-funded initiative, which focuses on inquiry-based science education through the work of education institutions in 23 EU countries. It aims to help these centres develop independent local projects whilst also sharing ideas and expertise with others across Europe. St. Patrick's College, Drumcondra are delighted to be heading up the Irish part of the project. We started working with 22 teachers from 10 schools in the Dublin area in September 2010, but it is hoped that the project will eventually extend to other schools and areas throughout Ireland.

We have developed an innovative professional development programme aimed at providing the participating 'Fibonacci' teachers with the opportunity to develop their expertise in teaching science. Our project focuses on teaching about the Nature of Science [NoS] as part of the primary science curriculum. Over the course of the two years of the project, 'Fibonacci' teachers will be engaging with a range of new approaches, so that their pupils can learn about: what science is, how scientists work as a social group, creativity and innovation in science, the history of ideas in science, science in the media and science, technology and society.

Pupils in the 'Fibonacci' schools are also becoming part of a community of science investigators through another part of the Fibonacci project. Discover Science and Engineering have adapted their *Greenwave* project, which has been running in Ireland since 2008. This year schools in the 23 EU Fibonacci countries are taking part in Greenwave Europe. In this way, pupils throughout Europe can look for signs of spring and log their data onto an international database.

For more information on the Fibonacci project contact Cliona.murphy@spd.dcu.ie or visit the Irish Fibonacci website:

www.fibonacci-project.ie

The European website is at:

www.fibonacci-project.eu

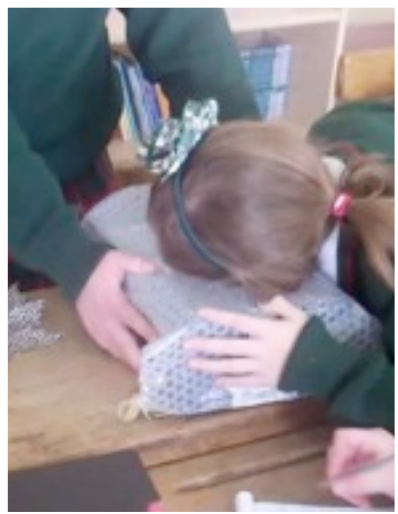
To find out more about the Greenwave Project you can visit the website: www.greenwave.ie

Who was Fibonacci? Leonardo Pisano is better known by his nickname Fibonacci. He was a mathematician, considered by some "the most talented western mathematician of the Middle Ages". There is a number sequence named after him.

What
is the difference
between an
observation and an
inference?



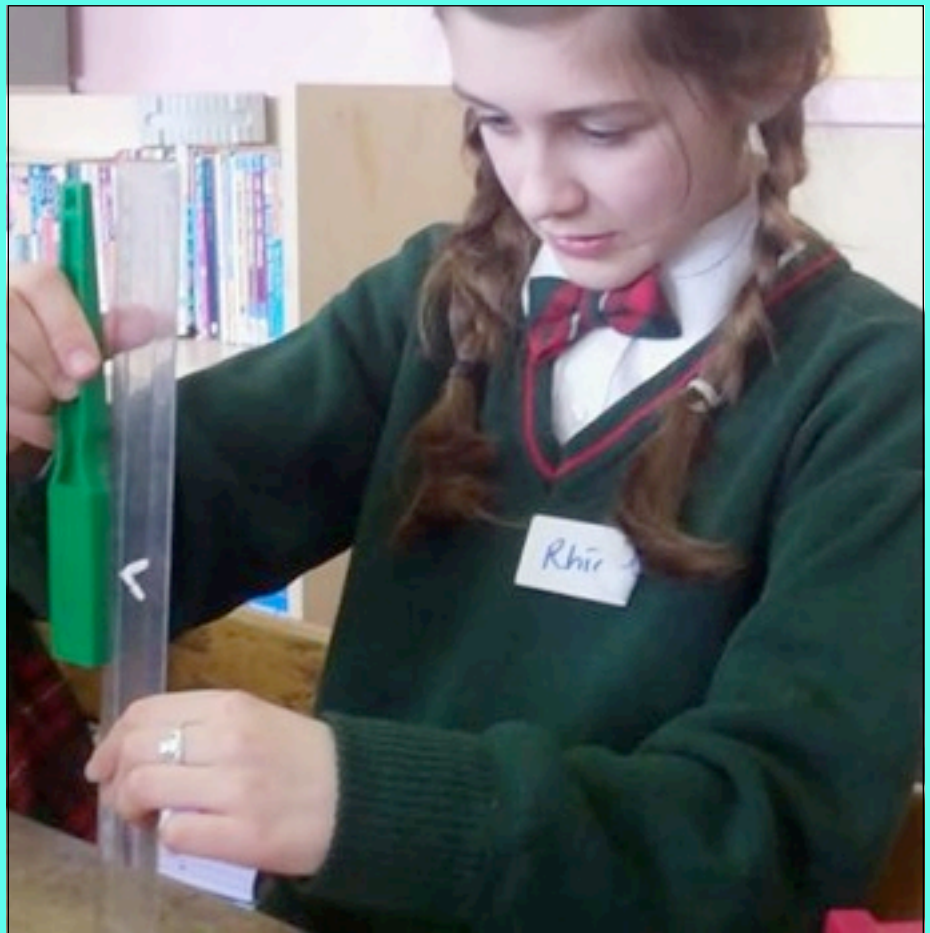
**Now over to the real stars of the
Fibonacci project - the children!
Each school has prepared a page
to summarise how the project has
been running this year.**



SOUND INSULATION

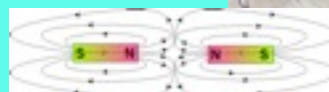
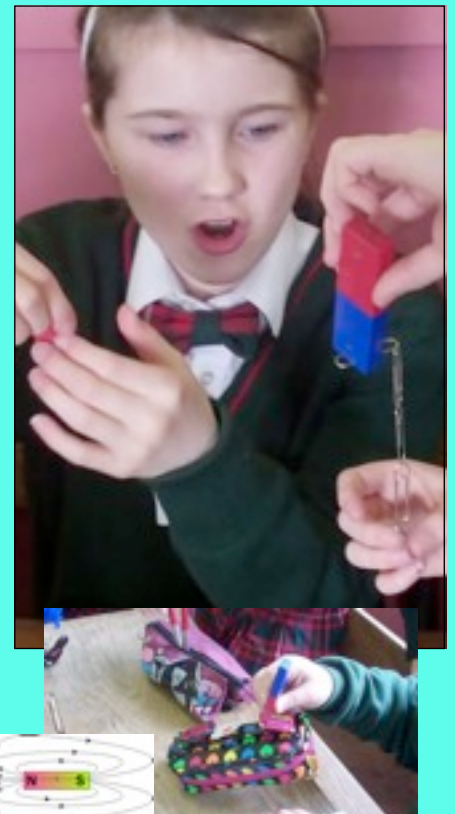


This investigation was to investigate which material would make the best insulator. The girls decided to use their mobile phones to create a sound and then tested a range of materials to see which would insulate the sound best. They put the phone inside a shoebox and listened very carefully each time. During both investigations, all the girls were very good at ensuring that their test was a fair test and could explain their findings very well!



MAGNETS

In these photographs, the girls from 4th and 5th class are carrying out two investigations. The first investigation is about magnets. After playing with the magnets for a few minutes, each group designed a fair test to determine which magnet was the strongest. The most common investigation involved creating a chain of paperclips from each magnet. The magnet that could hold the longest chain of paperclips would be the strongest magnet.





BAYSIDE SENIOR NATIONAL SCHOOL

The Magic Bucket



The water goes in clear and comes out clear BUT the red liquid goes in red and comes out clear.

WHAT
is going on
inside this bucket???



JELLY TEST



The students discussed in groups what jelly experiment they wanted to carry out. They discussed fair testing. They tested, observed and recorded their results. Some groups had to retest when they discovered their test was not fair. They worked like scientists.

A Nature of Science Activity:

The Hole Picture



A scientist is never handed all the answers to his/her questions. They have to gather as much information as possible to try and solve problems. The students were asked to observe, infer and then draw what they thought the hidden picture might be. They were only able to see little snippets of the picture.

Quotes from Bayside students about their science lessons this year:

"I loved science this year because I had fun and we learned a lot too. We learned about fair tests, retesting, observing and inferring" **Niamh 6th class**

"Science was different this year because before our teacher used to just tell us to write in our copies, but this year we got to do the experiments and it was more fun" **Max 6th class**

"All the other years they told you what to do, the same as everyone else, but this year we were just given what we needed, and a bit about it, but mostly it would be up to us" **Naoise 6th class**

"It was fun and more challenging for us. It made more sense and it had no confusing instructions" **Ita 6th class**

"I loved science this year, we did loads of fun stuff and learned loads too! All the stuff we did everyone (I think!) found something out!" **Áine 5th class**

"I really liked science this year. It was everything I expected it to be and more. It was fun, imaginative and scientific" **Ryan 5th class**

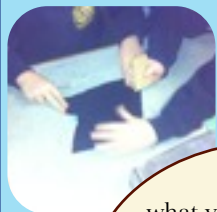


When you pull one string, another string is pulled, not the one you were expecting.
WHAT is going on inside this tube?

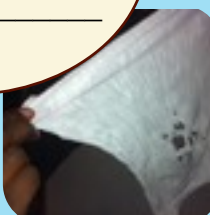
Could you make a tube identical to this at home?

Fabric Investigation

This was an experiment done on fabrics. The 3rd class boys used sand paper and investigated with three different fabrics to see which fabric was the strongest. They tested denim, cotton and elastic.



Predict
what you think is the
strongest material between
denim, cotton and elastic:



The Great Fossil Find



Information from the library might help us find out what our fossil is.

The boys made observations and made predictions about the fossils through studying the evidence and making inferences.

Snowmen: Two snowmen, identical size. A coat is put on one. Which snowman will melt first?

Some quotes from the lesson:

"Cold doesn't get on you-heat leaves you."

"When you touch a cold bottle, it's not the bottle that's making your hand cold. You're losing heat from your body. But if you wear a jacket that will keep your body heat in."

"Insulation can work both ways as in keep the heat in and keep the cold in!"



Placing frozen bottle without any covering beside our two covered frozen bottles! This, according to most boys in the class was going to be the bottle of ice which would take the longest to melt!



ST VINCENT DE PAUL GNS



Ice Balloons



Quotes :

"They all tasted different" Moya

"What's in them?" Julianne

"We had to think a lot" Sinead and Eva

"You have to use all your senses" Vilte and Martha

The girls worked in groups of 4 to investigate frozen balloons. Each group was given 4 different coloured balloons which had been filled with a clear liquid and a secret ingredient prior to freezing. Through observation and investigation with all the senses the pupils were asked to suggest what was in each balloon. They discussed their ideas and came to a group conclusion which was then reported to the class. The overall results were then discussed by the pupils with suggestions given as to why some theories varied. No 'right' answer was provided by the teacher but the pupils were offered balloons to take home to test their ideas.

Best Bubbles



What are the "BEST" bubbles?

Are they the biggest bubbles?

Are they the longest lasting bubbles?

Are they the biggest amount of bubbles?

How might YOU test the BEST bubbles?

What liquids make bubbles?



Dr Cliona Murphy, St Patrick's College, visits St Vincent De Paul GNS with Sam Maxwell and Trish Baker, teachers from the Fibonacci Project Leicester, England.



The girls discover how easily germs spread!

Quotes from some of the girls as they reflected on 'The Germs Workshop'.

Jude: *'The germs experiment was great fun! It was interesting too because it showed us how easily germs can spread. I knew how important washing my hands was but in the workshop I realized that how you washed your hands mattered too.'*

Niamh : *'I thought the experiments were really interesting as I did not know how easily germs spread. You have to wash your hands carefully!'*



All that glitters.....

As part of our 'Germs Workshop' we used different coloured glitter to represent germs. Having used hand cream we shook lots of glitter on the germ spreaders' hands. They then shook hands with different girls in the group. This showed how the glitter-the germs- spread easily from person to person.

Some quotes from the girls in Room 20.

Aisling S. *'If you sneeze you really HAVE to wash your hands.'*

Laura k: *'Germs spread so easily you have be very careful about how you wash your hands.'*

Caoimhe: *'You have to wash your hands properly in between your fingers and around your nails!'*

Enya: *'We sang Happy Birthday twice when Joanna was washing her hands!'*

St Colmcille's Senior School

Up, up and away!

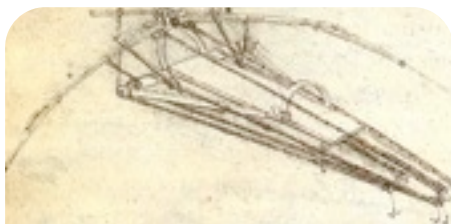
We began our work on forces by looking at Da Vinci's parachutes.



We made spinners from paper and then the children designed and made their own parachutes. Coming up with what we were investigating took a while to discuss. We decided in the end to measure the accuracy of the parachute on a target spot over three throws.



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This is a Da Vinci sketch. What was Leonardo trying to design? Any ideas?

FRICTION

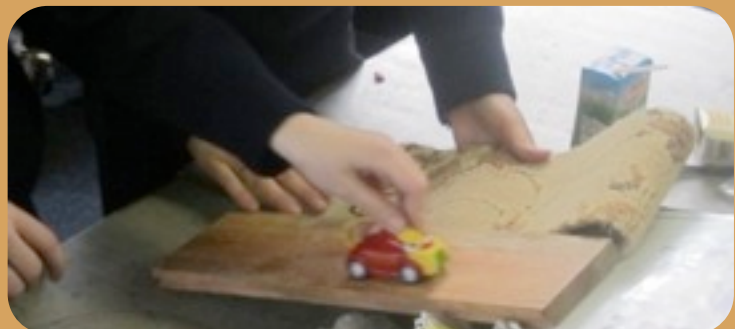


Scientists at work!

The children set up an experiment with different surfaces (carpet, wood and tile) and toy cars. They first predicted which surface the car would travel furthest on when pushed. Then they carried out their investigations.



The group said that the carpet was longer than the wood and so it was not a fair test, so they placed a pencil case on the carpet as a cut off point. The students had a great discussion on fair testing.



ST PIUS X BOYS' NATIONAL SCHOOL



Using their knowledge of sound the boys made string telephones.



Science Week: Working with the theme of forces the boys made balloon rockets.

Task:

Could you design a magnet fishing game for a group of junior infants?

-What materials do magnets attract?

-Can you name a few materials that magnets are NOT attracted to?

-What else do you know about magnets?



"Our school has thoroughly enjoyed participating in this project and look forward to next year."



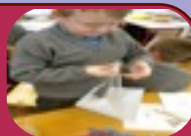
The boys put all their knowledge of magnets to good use when they made magnetic fishing games.



SCOIL MHUIRE, MARINO.

Second Class Room 3 and Fifth Class Room 17 have been taking part in the Fibonnaci Science Project. Both classes have developed scientific skills such as observing, inferring, hypothesising, investigating, testing and reporting etc. Lots of boys now vote science as one of their favourite subjects! Here are some of the Science lessons we have taken part in so far.

Both classes designed, made and tested their own **parachutes** based on a design by Leonardo Da Vinci. Children investigated which materials and designs would help keep the parachute in the air the longest!



Fifth Class Rm.17 looked at how easily **germs** are passed on and the importance of good hand hygiene. They displayed their findings on a chart and were very surprised at the results!!



The Tube

Both classes observed a tube and in groups discussed how they thought it worked. Each group drew a diagram of how they thought it worked and then used their scientific skills to test their own ideas.



The Magic Bucket was truly fascinating as we didn't know how it worked and we couldn't see inside it. When different coloured liquids were poured into it the same colour liquid always came out. We drew diagrams of what we thought was happening. We observed, used inferences, hypothesised and discussed our ideas with each other.



Diagrams by Second Class Room 3 to show how they thought the magic bucket worked.

St. Martin De Porres National School

Fossils

"We really enjoyed working like scientists on this activity!"



5th Classes working together on this mystery fossil hunt. Assembling the fossils and comparing them to bones found in other creatures.



Plant or animal fossil?



Earth's Oldest Fossils

The evidence of microscopic life forms has been detected as old as 3,700 to 3,800 **million** years ago. This evidence was found in Greenland. There have been claims of evidence dating back as far as 3,850 million years ago but these are not universally accepted. Scientists continue to search for reliable data on the earliest life on earth.

Take a peek into the scrapbook of a real paleontologist in "Going Gobi" in the paleontology section of the American Museum of Natural History website. Log onto:

www.amnh.org/ology

Our Lady of Victories Senior Boys' National School



Planning, discussing
aerodynamics, constructing,
testing, working like scientists.



Making European Links



Kindergarten
students



Student teachers
exploring magnets

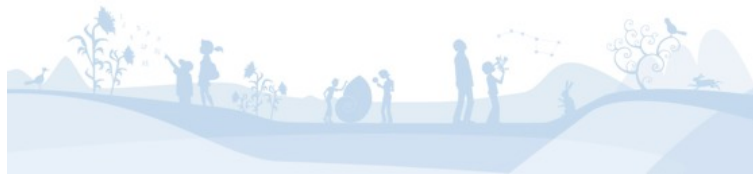


Science outdoors



Slovakian primary
school students at work

Emer O'Connor and Siobhán Treacy, two of our Irish Fibonacci teachers, from Bayside S.N.S., travelled to Trnava, Slovakia in April to attend a Fibonacci field trip. Those participating in the trip included teachers, university lecturers, project facilitators and project evaluators from a variety of European countries. They visited a kindergarten, a primary school, a teacher training college, Trnava University and observed Slovakian primary students engaging in Fibonacci lessons in the outdoors. On return, the teachers reported on a great trip and a greater insight into the project after seeing it in action in another European country.



Fibonacci Schools, Ireland.



www.fibonacci-project.ie

Fibonacci Participants, Europe.



www.fibonacci-project.eu

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