DMAG

Australian National Maritime Museum

Teachers' notes

Charles Darwin

Voyages and ideas that shook the world

These teachers' notes are to be used with Project Pullout #35, which is found in issue 88 of *DMAG*. Students will discover Charles Darwin's amazing voyage of discovery and touch on some of the ideas Darwin became famous for ...

This supplement encourages students to:

- Learn how to draw and read maps
- See the value in keeping diaries and records
- Appreciate how amazing Darwin's journey was
- Realise that nature is continually changing
- Understand the process of natural selection

Maths: Understanding and reading maps

As a class, look at the map on page 50 and discuss the route Darwin took. Talk about compass directions in terms of the *Beagle's* route. Test their knowledge with these questions:

- Which way did the *Beagle* head when it left Plymouth? (Ans. South)
- Is South America to the east or west of England? (Ans. West)
- From the Galapagos Islands, which way did the *Beagle* head to reach the Bay of Islands in New Zealand? (Ans. south-west)

Drawing maps

Once the class has a feel for the map, explain to the class that this map has been simplified because it is so small. Since the *Beagle* was actually mapping (or surveying) the coast of South America, it actually had a lot more stops along the way.

Download the blank map of the world on www.dmag.com.au and ask students to map Darwin's route in the *Beagle*. They should use the map in *DMAG* as a guide but they should add the extra detail around the coast of South America. They will need to research Darwin's route in this area.

Extension Exercise: Find the Strait of Magellan. What was it and why was it important?

HSIE: Living in communities

Life on board the *Beagle* was like living in a small community. Discuss the roles people played. For instance, cook, navigator, surveyor, captain etc.

How did this community live? Where did men sleep? What did they do for entertainment? What did they eat? What would happen if they ran out of food? Where along the route would they have taken on board supplies? Would they have paid for these supplies? How would someone like Darwin have felt on board the *Beagle*? What would it be like to see some of the things he did?

Discuss how long the *Beagle* was away from England. Explain that there would be weeks when the ship would sail with no land in sight. What are some of the things Darwin would do in these instances to fill in the time?

Science: Living things

One of the things Darwin did on the voyage was collect specimens. He collected rocks, plants and animals.

Discuss the following: Why did Darwin collect the specimens? Did they have similar plants and animals in England? What sort of information would be helpful to record with each specimen?

Living things: field project

Ask each child to go into the playground or a park and collect three items from a variety of plants. Each

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student is to record where they found it and when. Back in the classroom, ask students to identify what plant their specimen is from.

Living things: specimen tray

As a class, look at the picture on page 47 of *DMAG* showing Darwin's crab specimens. The crabs are all neatly placed, labelled and grouped together in a tray.
Tell the class that they'll be making specimen trays too, like Darwin's.

What would be a good way to group each tray? (e.g. one tray could be of leaves, one of flowers, bark, etc.)
Once the trays have been made, split the class into groups and assign one tray to each group. Using an Excel spreadsheet or similar, ask each group to make up a table for each tray, listing each item found, giving it a unique 'catalogue' number (like Darwin did) and recording the earlier information, like when and where the plant was found.

From specimen trays to databases

Once each group's table (database) is complete, add all the tables together on the spreadsheet, making sure each group's table has the new 'tray' category e.g. flowers. Then discuss how the information can be sorted to quickly show different things. For instance, the larger table can be sorted by type (e.g. flower, bark) or by location, or by time. If the exercise is repeated in a different season, the items might differ.

English: Keeping a diary

Discuss the reasons Darwin would have kept a diary (prompts: something to do, a way to record what he was seeing etc).
Tell the class to imagine that they are on an adventure like Darwin's and each is to keep a diary. The diary is to be written for an imaginary period of a month (give them a week to

complete the exercise). Parts of it could describe the sailing conditions, food, specimens, people being met, scenery, plants and animals, the writer's feelings and health etc.
Bonus points: Provide sketches and/or a map to illustrate the entries.

Science: Plant experiment

This is an actual experiment Darwin did when he returned to England. It is a great one to try as a class though it will take two months. Note: the plants are best kept in an open area.

You will need:

- 10 small pea plants (important that they are not flowering)
- Fine netting to cover five plants

Aim: To see if cross-pollinated plants are stronger/healthier than self-pollinated plants.

Method:

1) Remove any insects from half the plants and cover these in netting, making sure insects cannot get in.
2) Leave the plants in a protected area until they flower.
3) Observe the plants when they flower. Are insects reaching the plants without netting? (Note: they should be.)
4) When the flowers turn into seed pods, pick the four best pods from each plant.
5) Count how many seeds are in each pod. (There should be more seeds in the pods that were not covered in netting.)
6) Plant the seeds that were in the above pods, labelling them as netted or un-netted. Water the seedlings until they grow.
7) After a few weeks, measure the heights of each group. The group that was under the netting should have shorter plants.

Read page 47 of *DMAG* and discuss the results. Ask the class to come to a conclusion about the experiment.

About *DMAG*

These Teachers' Notes were sponsored by the Australian National Maritime Museum and written by the staff at *DMAG*. They may be reproduced for use in school classrooms. To subscribe to the magazine they refer to, call 1300 887 795 (Australia) or 612 8296 5413 (int.).

Visit the National Maritime Museum!

The Australian National Maritime Museum is in Sydney. To arrange a visit to the museum email bookings@anmm.gov.au