Task: Soak It Up

Approach: Team **Year:** 8
Focus: Testing wet strength
Resources: 2 x four types of different paper samples marked A,B,C,D; 6 rubber bands; jug; 4 marbles; 4 jars; bowl of water; tray; "Working Together" team guide

Questions / instructions:

Discuss/review "Working Together" Team Guide.
[as shown in task 'Plants' , page 22]

Some papers need to be strong when they are wet; like tissues, toilet paper and paper towels.

Hand out and identify one sample of each of the 4 papers.
[A = newsprint; B = coffee filter; C = paper towel; D = tissue]

In your team you are going to design a test to find out which of these four papers is the strongest when it is wet. The test needs to be a fair test. In a fair test, only one important thing is changed at a time. For example, the size of the paper.

Before you do your test you need to talk about how you will do it and how you will make sure it is a fair test.

Here is the equipment you can use for your test.

Hand out equipment.

Talk about how you will do your test so that it's a fair test. But don't start it yet.

Allow time for team discussion.

1. Now explain to me how you will do the test.
2. What will you be doing so that your test is a fair test?

Now you can do your experiment.

Allow time.

	% responses y4	% responses y8
Planning of test:		
planned to set up 4 samples in same way		86
planned equal addition of water		74
planned how strength would be tested/measured		72
discussed value of repeating test with new samples of same paper *(replication)*		8
Overall rating for quality of planning: high		8
quite high		19
moderate		43
low		30
Conducting test:		
set up 4 samples consistently		87
controlled equal addition of water		64
observed results carefully using consistent criteria		61
recorded results		7
replication, without teacher prompting		19
Overall rating for quality of experimentation: high		5
quite high		31
moderate		38
low		26

You've thought up and done your experiment. Have a team talk about how well your test went. You might want to change things and try the test again. You can talk about that now, and if you want, you can try to improve your test, or do a different test.

Allow time.

	% responses y8
How well did they discuss the probable consistency of results if test repeated: well	15
moderately well	48
poorly	37

If students make changes to the experiment then ask questions 3 and 4:

	% responses y8
3. What did you do to improve or change your test? not marked	•
4. How did that improve your test? not marked	•
5. What did you find out about the strength of the papers when they are wet? not recorded here	•
6. Do you think you would get the same result if you did the test again? not marked	•
7. What was it about how you did your test that makes you think you could get the same result again? not marked	•
Total score: 13–16	8
10–12	26
7–9	25
4–6	27
0–3	14

Commentary:

The experimental arrangement suggested by the resources provided did not work very well, because the papers with higher wet strength were hard to distinguish. Very little attention was given to the desirability of replication, although multiple samples of paper were available.