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eTwinning



Smartphones for smartphysics

The experiments: what to do – division of labour

In this part of the project you do an experiment about motion. In your international team you have to do a similar experiment. Everybody films and makes measurements. All results (photos, videos, measurements, ...) come on a common Adobe Spark Page

Every international group consists of 2 sub-groups: 2 or 3 Belgian students and 2 of 3 Italian students

These are the conditions with which the experiment is to comply:

- The experiment has to do with (angular) velocity, (angular) acceleration.
- For the experiment you use the app “phyphox”. You are basing on the mechanics experiments in phyphox:
 - Acceleration without g ([Acceleration \(without g\) – phyphox](#))
Make a hole in a piece of sturdy paper and attach a string to it. Place your smartphone on this paper. Make sure the paper is NOT slippery so your smartphone will stay down during the test. You can now make your phone move by hanging masses on the string. Experiment with different masses or different surfaces (friction). Calculate the forces by using the measured acceleration.
 - Centrifugal acceleration ([Centrifugal acceleration – phyphox](#))
 - Roll ([Roll – phyphox](#))

These are the different steps you have to make:

1. First of all every group has to think of an experiment. This has to be similar in both countries, so dialogue with your foreign partners is needed. Therefore each team find a forum on the twinspace. In this forum you can arrange a live-meeting to discuss with each other what you will do and how. Maybe, it's a good idea to make a google doc to work together.

Choosing the experiment and explain to the teachers: before Monday the 15th of November

2. The experiment: protocol: the **Belgian students** make the protocol for the experiment and put this on the twinspace:

- Research question + hypothesis
- Needed material
- Description of the experiment

Making the protocol: before Sunday the 28th of November

3. Doing the experiment:

During one of the physics-lessons everybody will do the experiment. Make sure that you do enough measurements, one measurement is not scientific!

Measurements: during January

4. Write a report on the experiment:

- Tables and charts of the experiments
- Examination of the results
- Writing a good scientific conclusion
 - → this has to be done in both countries
- Comparison between the conclusions in both countries

Finishing the report: before Sunday the 30th of January

5. Making a common Adobe Spark: the **Italian students** start the Adobe Spark and share it with the Belgian students. Make sure everything is on that page: photos, videos, protocol, report, ...

Deadline Adobe Spark: Sunday the 27th of February