

		
		
<h2 style="text-align: center;">Hit that ball !</h2>		
<h3 style="text-align: center;">The experiments: what to do – division of responsibilities</h3>		

In this part of the project you do an experiment about **basketball or volleyball**. 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 document and afterwards a tutorial-video will be made.

Every international group consists of 3 sub-groups: 4 Belgian students, 2 or 3 French students and 4 or 5 Italian students

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

- The experiment has to do with volleyball or basketball. Make sure that you can change some parameters during your experiment. Some examples of experiments:
 - Volleyball: overhand start shooting: from rest – from jump – from running
 - Basketball: dribble: while standing still – while running – while jumping
 - ...
- During the experiment you have to analyse the trajectory, velocity and acceleration of the ball.
- You need to film the throw and then analyse it with Tracker.
- You have to become several charts and equations:

- $y(x)$
 - $v_x(t)$ and $v_y(t)$
 - $a_x(t)$ and $a_y(t)$
- Discussion of the charts and equations - making conclusions

These are the different steps you have to make:

1. First of all every international group has to think of an experiment. This has to be similar in the three countries, so dialogue with your foreign partners is needed. Therefore for each team there is created a google form. There you can put all your documents and ideas.

Choosing the experiment and explain to the teachers: by the end of November

2. Protocol of the experiment: the **Belgian students** make the protocol for the experiment and put this on the twinspace:
 - Research question + hypothesis
 - Needed material
 - Method

Making the protocol: before Friday the 18th of January

3. Doing the experiment: during the physical education lessons everybody will do their experiment and film everything. Make sure that you do enough throws, changes, ... Your experiment has to be a real scientific experiment

Measurements: during January / February

4. Do the video analysis of the experiment: during the physics lessons you use the program "Tracker" to analyse the throws.
 - Charts and equations of the experiments
 - Discussion of the results
 - Writing a good scientific conclusion
 - The report of all the experiments will be put on the twinspace

For this we will work in a circular way: videos will be past to students of another country they will analyse them and then send the analysis to the students of the third country who will make the conclusions.

- Belgians send their video to the French, French analyse and send them to the Italians. The Italians make the conclusion and put the finished document on the twinspace.

- French send their video to the Italians, Italians analyse and send them to the Belgians. The Belgians make the conclusion and put the finished document on the twinspace.
- Italians send their video to the Belgians, Belgians analyse and send them to the French. The French make the conclusion and put the finished document on the twinspace.

Finishing the report: before Friday the 22th of March

5. **French students** make a comparison between the conclusions in the different countries.

Finishing the comparison: before Friday the 5th of April

6. Making a tutorial video: the **Italian students** will make a video of the experiment using protocols, charts, results, photos, videos, ... of the three national teams.

Deadline tutorial video: before Friday the 26th of April