DYNAMICS
forces

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In this document there is a compilation of different supplementary material needed in the activities.

The material has been organised chronologically as it comes up through the activities.

| Activity	Description
1.2	Crosswords A and B Each crossword has half of the words, both have the numbers for all the words, both the written and the missing.
1.3	Cards Set of 8 cards to be printed, covered in plastic and cut.
1.4	dotsub.com Instructions for registering at dotsub.com, uploading videos and subtitling them.
2.3	Cards Set of 12 cards to be printed, covered in plastic and cut up.
2.4	Problems Sheet with exercises
2.5	Twitter & twubs Instructions for registering at twitter.com and twubs.com and creating the *hashtag* group.
4.3	Google Maps Instructions for using Google Maps and creating a map to be shared with students.

Crossword **A**

Crossword **B**
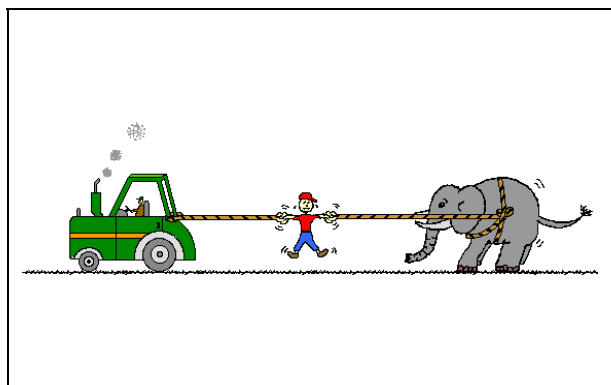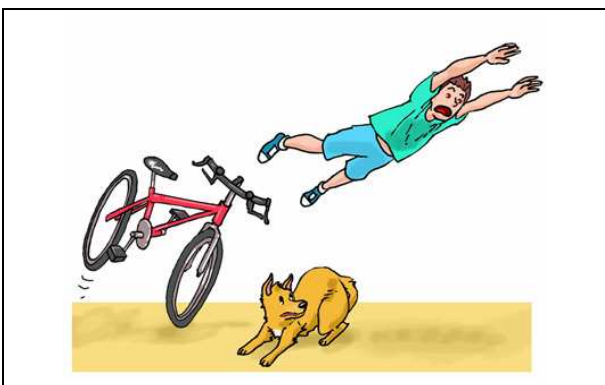
Activity 1.3

Activity 1.4

Using dotsub.com

1 – Go to http://dotsub.com

2 – Register

Click on 'register' at the top right.
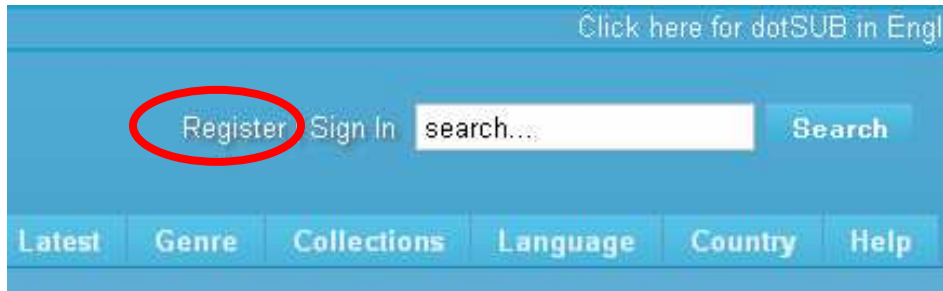
A new page will be displayed:

Fill the application, click the agreement and finally click on 'signup'.

3 – Signing in:

Once you have registered, you will be able to sign in. Then, your username will be displayed in the top of the page.

4 – Choosing a video to subtitle:

Click on the image shown at the right

You will have then to fill some fields about the video you are going to create, do it and be careful about next step.

At the bottom of the form you will see this:

Click on the right option 'create from existing internet address', this will appear:

Introduce the URL of the video that you're going to subtitle here. That URL is what follows:
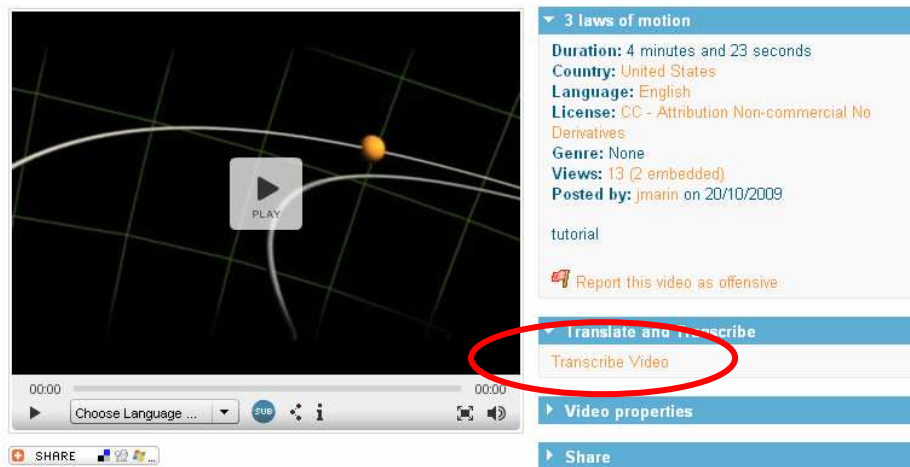
http://www.youtube.com/watch?v=iH48Lc7wq0U

A new page will be displayed, the linked video will take some minutes to be prepared to start subtitling. You will see its status, once it has been processed something like this will appear:

You can start subtitling right now!!

5 – Subtitling:

Click on the name of the video and a new page will be displayed:

Click on 'transcribe video'

Now starts the process itself, it's very easy to understand how it works, just try it. You have to write your sentences in the box shown next.

As you can see you can choose both the time the sentence appears in the screen and the time it disappears. Now all you have to do is create!!!

6 – Publishing the video transcribed.

At the end, you will have your video transcribed. What you need now is to click on 'mark this video as completed'. You will see your video page again. In order to share it, click on 'share, at the bottom of the video.

Click there and this will be shown:

You have to copy the URL and send it to the teacher or whoever you want to show your work. You could also embed your video in a webpage by pasting the code shown.
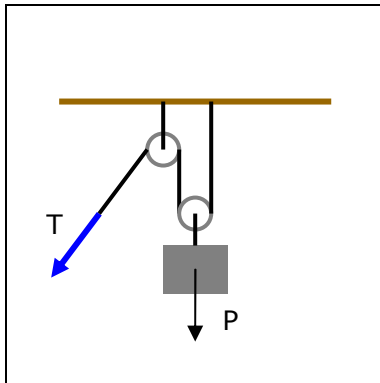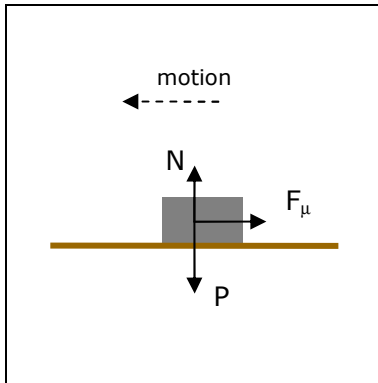
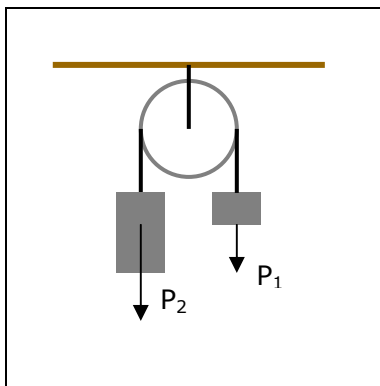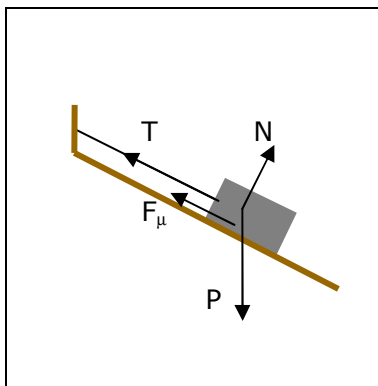**Activity 2.3   matching cards**
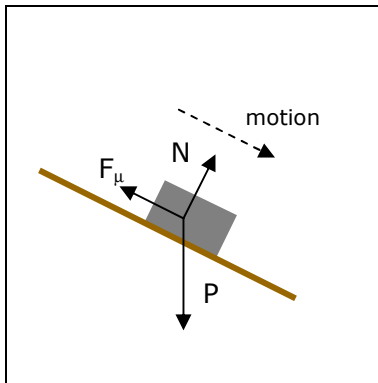
$$N + P_\eta = 0$$

$$F_\mu + P_\tau = m \cdot a$$

$$N + P = 0$$

$$F_\mu = m \cdot a$$

$$P + 2 \cdot T = 0$$
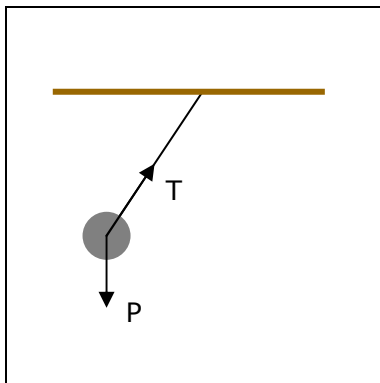

$$|P_2| - T = m_2 \cdot a$$

$$T - |P_1| = m_1 \cdot a$$
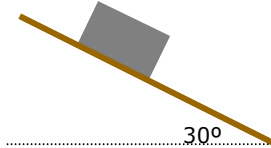
$$N + P_\eta = 0$$

$$T + F_\mu + P_\tau = m \cdot a$$

$$T_y + P = 0$$

$$T_x = m \cdot a$$

Activity 2.4   problem solve

1 – A stone with a mass of 350 g is at rest on the floor. Work out the normal force acting upon it.

2 – A body is placed in a slope as shown. Its mass is 3'4 kg and the friction coefficient with the surface is 0'1. Could you find the acceleration acting upon the body?


30º

3 – The body of exercise 2 is dragged up through the slope once it has reached the floor. Find out the magnitude of the tension applied to the rope in order to move the body with a steady velocity.

30º
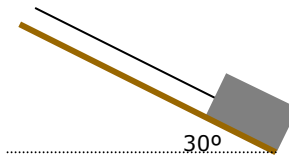
4 – An Atwood machine is a device made of a trolley and a rope. Find out the acceleration for the system of two masses shown and the tension the rope is supporting.

trolley

rope

A   B
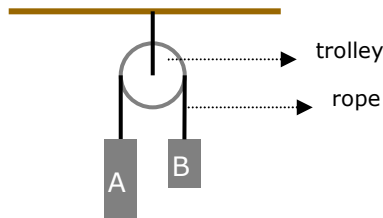
5 – A 500 g body is dragged through a surface as shown. The friction coefficient between the body and the surface is of 0'12 and the force applied to the rope is 100 N. Work out the acceleration that will appear upon the body.

F

45º
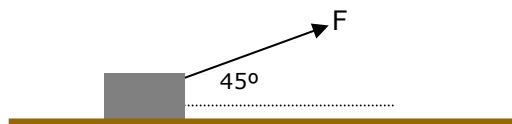
6 – A car driving at 90 km/h is carrying a van as shown. The car mass is 1600 kg an the mass of the van is 750 kg. The friction coefficient between the tyres and the road is 0'2. Which is the force needed to keep steady the velocity? Find out the tension that the link joining the car and the van is supporting.

link

F ??

Activity 2.5

Here you are some instructions about using twitter and twubs. Notice that this instructions were made on December 2009 and websites may have changed since then. So, be careful about that.

Two websites are needed in this activity and both are interconnected. Let's see how does it work.

Twitter is a free social networking and microblogging service that enables users to send and read messages known as *tweets*.

Twubs are *twitter* groups built around content aggregated from *#hashtags*.

So, *twitter* users meet in a group that has been created in *twubs*. The teacher and his/her students will have to register in twitter, then the teacher will register in *twubs* and will create a *#hashtag* for the whole group.

Later on, students will publish their tweets into the *twubs#hashtag* group. Let's see it step by step.

Registering at *twitter*.

1 – Go to http://twitter.com
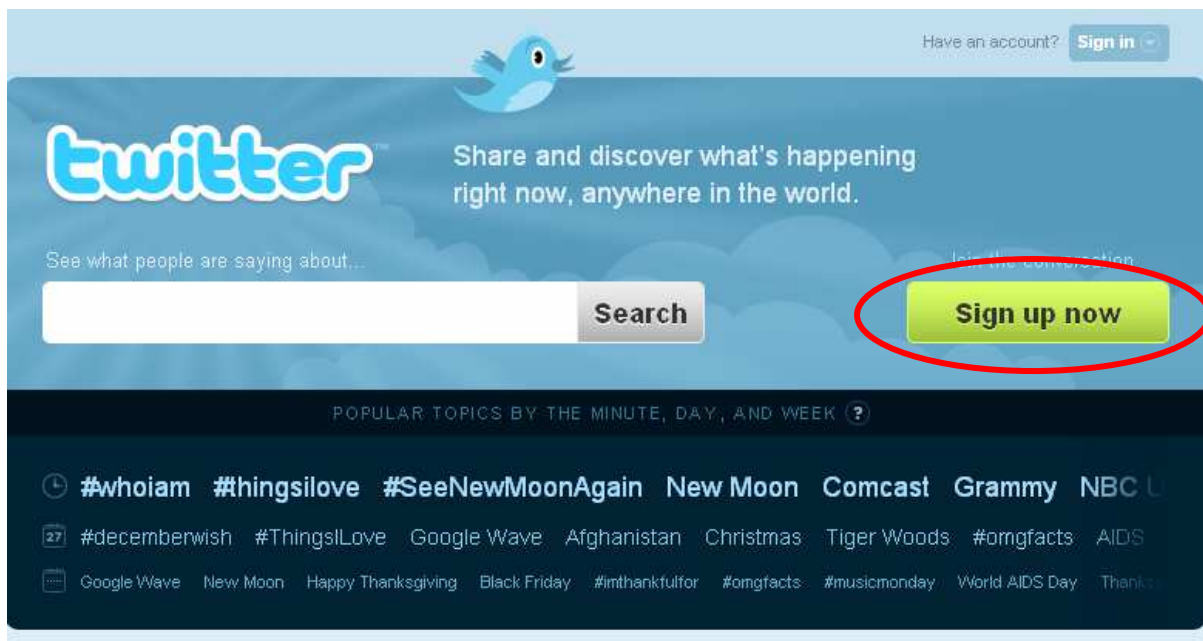
2 – Click on the *Sign up now* button placed in the top right.

Now fill in the registration form and follow the instructions. You will be able to sign in later on.

It is important to tell students to edit their profile and add a picture of them, that helps a lot when monitoring students activities.

Registering at *twubs*.

1 – Go to http://www.twubs.com

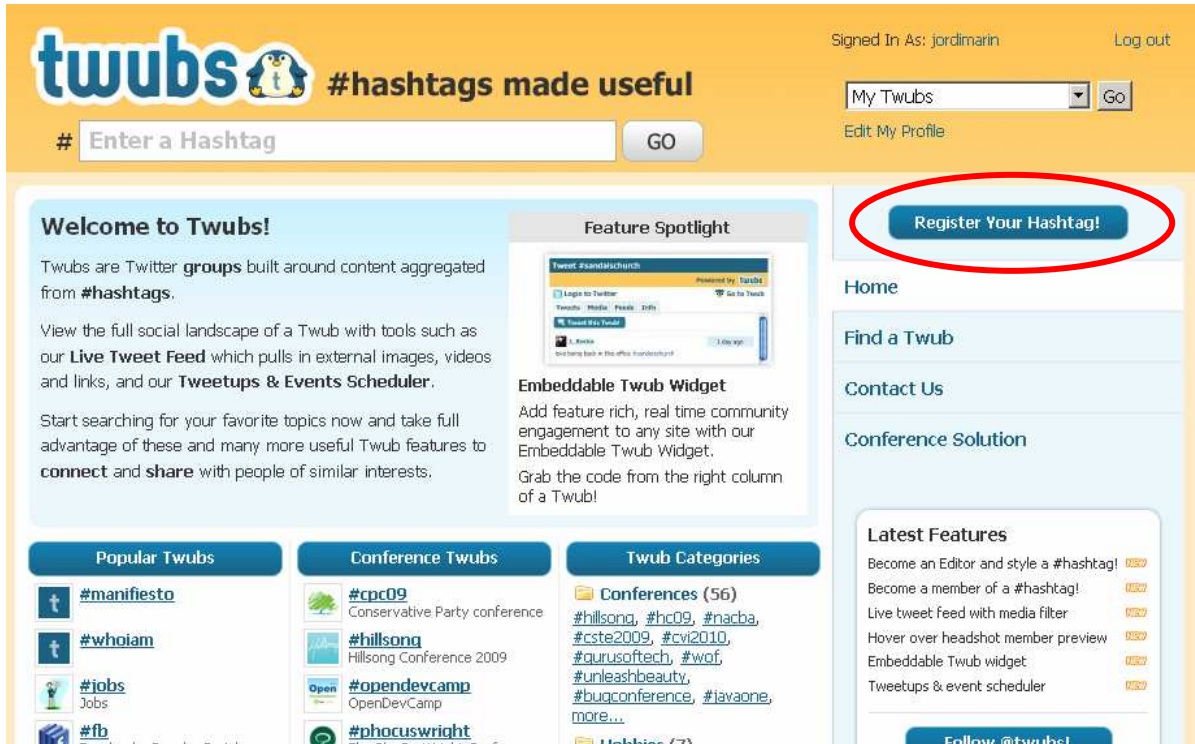2 – Click on the blue *Sign in* button on the top right.

Click on the *twitter login* option.

Creating a *#hashtag*.

Once you have created the two accounts you need to create the group for the activity. Log in *twubs* and follow the instructions:

1 – Click on the blue *register your hashtag!* button on the right.

2 - Enter a name for your group

The group (the *#hashtag* you have chosen) has its own URL: *http://twubs.com/hashtag*

(remember *hashtag* stands for the name you have chosen for the group)

Joining the group

Once the group has been created you have to join in. You can do it just going to the group URL and clicking in the blue *join this twub* button in the right.

Remind your students to join as well.

Tweeting

Now all your students have to do is to post their problems into the *twubs/hashtag* web and answer their partners.

Activity 4.3

Using Google Maps is not difficult at all, but there are some requirements, the most important is to have a gmail or googlemail account.

The teacher will create a map going to http://maps.google.com and logging in.

Then follow the instructions to create a new map. Remember to make it public and invite your students to collaborate in the map. You have to allow collaborators to edit the map.

By editing the map, students can add marks: