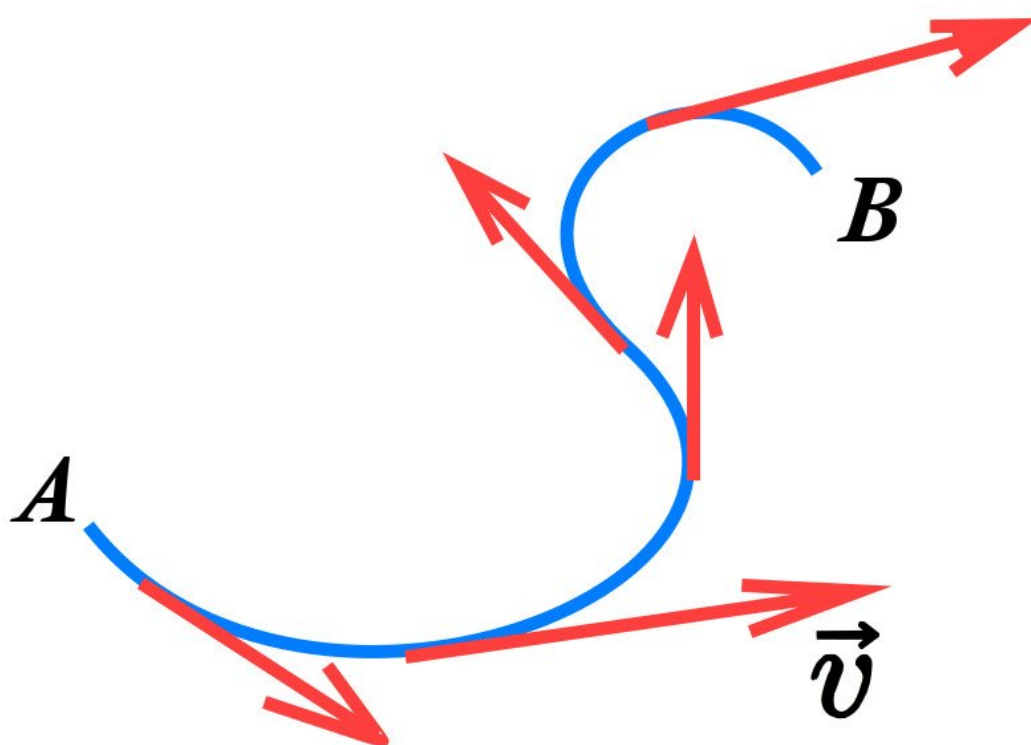


Velocity



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1 'How would you define velocity?' - 5min

The goal of this section is to see what every kid knows about velocity and to allow them to get progressively into the subject by thinking about it by themselves. At the end of these five minutes, the following explanation should be given to the whole group so that they have a good idea about what the activities are going to be related with: Velocity can be seen as a comparison between **distance** and **time**. If during a **short time** and object covers a **long distance** then the **velocity is high**. On the other hand, if during a **long time** and object covers a **short distance** then the **velocity is low**.

2 Drawing arrows - 20min - [Activity]

All the information of the **velocity** of an object can be represented with an **arrow**. The **direction** tells us where the object is going to. **The length of the arrow** tells us if the object is moving fast or slow, a long arrow representing a fast moving object and a short arrow representing a slow moving object.

There is an example of a trajectory and arrows representing the velocity of the object at different times in the Powerpoint. Explain the example so that the kids properly understand it. As kids can see **Velocity arrows are always tangent to the trajectory**

There are some trajectories in the powerpoint. The kids have to reproduce the trajectories and draw the velocity arrows they want for those trajectories.

Now, there is another series of examples trajectories but this time with the points in which the position was taken at even time intervals. That means that when points are close together the velocity is low and when they are apart the velocity is high. Let the kids draw again the arrows they want. After they have done so, check if they drew arrows according to the spacing of the points. Indeed, if the points are spaced by short distances that means that the object has low velocity there, if they are spaced by long distances, the arrows must be long since the object is moving at high distances. See the powerpoint for corrections.

3 Chronophotography - 20min - [Activity]

Chronophotographies are a series of images of an object taken at **evenly spaced time intervals**. That allows us to see the velocity at which the object is moving. If the position of the object in two consecutive images is very different, the object is moving fast. The object is moving slow if its positions in two consecutive images are close together. *This concept might be a little hard to understand for the kids so you might need to take your time to explain it properly.*

In the powerpoint are shown several examples of chronophotographies. Kids should work in groups and try to draw the arrows describing the velocity of the object, just like in the previous section but this time based on the photographs. **(You might want to print the pictures and distribute them to the kids, a picture-only pdf is attached in this module so**

that it is easy for you to print it).

The correction of all the chronophotographies is in the powerpoint.

4 Your own chronophotography - 10min - G+T

One needs a special camera to take chronophotographies. However, we can simulate them with a **normal** camera. In case you have one to lend to the kids, tell those that finish early the previous section to make their own chronophotography. To do that, take the picture of an object, move it a little bit, take a second picture, and so on. Kids can choose to move the object different distances between two consecutive pictures to simulate the velocity at which it would be moving in 'real' movement.