# Cambridge Academic English

## An integrated skills course for EAP

### Video Worksheet


## Upper intermediate

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# Video Worksheet B2
# Upper intermediate

These worksheets contain listening comprehension tasks which accompany Dr Hugh Hunt's lecture, *Boomerangs, Bouncing Balls and other Spinning Things*. This lecture can be found at www.cambridge.org/elt/lectureB2

Answer sheets, a worksheet on Lecture skills and more lectures can be found at www.cambridge.org/elt/lectures

## Preparing for lectures

**1.1 The lecture title is *Boomerangs, Bouncing Balls and other Spinning Things*. Before you watch the first extract, think about the following questions.**

**a** What do you know about how a boomerang works?
**b** How do you think spinning objects keep moving?
**c** How could a lecturer explain how these things work?

## B2 Extract 1 (starts at 00:00 and ends at 03:54)

**1.2 Watch the first extract and make notes on the following questions.**

**a** What does the lecturer say he is going to demonstrate?
**b** Draw a diagram based on the lecturer's slides and as he is explaining the slides and theory, add to your notes.
**c** What would happen to the light if there were two mirrors in Dr Hunt's demonstration?
**d** Does the bouncing ball in the demonstration move in the same way as light? What happens?

## Listening for detail

## B2 Extract 2 (starts at 03:54 and ends at 07:02)

**Study tip**
*When lecturers are explaining complex procedures or theories, they may repeat key information. The type of expressions you may hear, when they repeat information, could be amongst the following: 'OK, so to summarise.', 'Let's have a look at that again.', 'OK, let's recap on that.' If you listen for these signposting expressions in the lectures that you attend, it will help you focus on important information.*

**2.1 In the next extract the lecturer explains why the ball bounces back. Listen to the lecturer and answer the following questions.**

**a** What happens to the ball in the first collision?
**b** What type of spin do we see when the table is turned upside down?

## B2 Extract 3 (starts at 09:14 and ends at 14:16)

**2.2 The lecturer begins the next section of his lecture by asking a series of questions. This is another way of signposting what is to follow.**

**a** Make a note of the questions that the lecturer asks and answers in Extract 3.
**b** What does he use the bicycle wheel to demonstrate?
**c** Which two terms does the lecturer use when describing spinning things? How does he explain the turning, tilting motion?
**d** At the end of the extract he says something is similar to a spinning top. What object is it?

(If you are interested in the topic and want to find out more about gyroscopic effect and Newton's 'law of motion', watch the lecture from B2 16:09 until 19:52)

## B2 Extract 4 (starts at 19:54 and ends at 24:23)

**2.3a Before you watch the next extract, match the words with the definitions.**

| | | | |
|---|---|---|---|
| **1** | motion | **a** | any influence that changes an object's speed, direction or shape |
| **2** | acceleration | **b** | the act or process of moving |
| **3** | force | **c** | the speed at which an object is moving |
| **4** | mass | **d** | the influence that keeps an object moving (once it is already moving) |
| **5** | velocity | **e** | the amount of matter in any solid object or in any volume of liquid or gas |
| **6** | momentum | **f** | an increase in the speed of something |

**b The words (1–6) in 2.3a all appear in the next extract of the lecture that you are going to watch. What topics and examples from physics do you think will be included in the extract?**

**c Watch the extract to check your answers.**

## B2 Extract 4 (starts at 19:54 and ends at 24:23)

**2.4 Watch the extract again. Complete the lecture notes using no more than three words for each answer.**

The moon moves around the earth in a **1** _____ – so does an **2** _____ whizzing around your head. The ball seems not to be accelerating - it looks like it's at a **3** _____ . If it's not accelerating, Newton says there's no force because force is **4** _____ .The **5** _____ says there must be an acceleration if there's a force.
If you drive a car at a constant speed you first need a force. If you slow down and there's a side wind, it can **6** _____ . When a ball goes around in a circle the force is at **7** _____ to the velocity. It doesn't get slower, but its direction is **8** _____ . It is accelerating because the direction changes. This is important when thinking about **9** _____ and angular **10** _____ .

**2.5 Answer the questions.**

**1** To lift the bottle of water, the force in the string must be equal to what?
**2** During acceleration, what determines the change in speed?
**3** What does the lecturer describe as 'basically just an arrow'?

## B2 Extract 5 (starts at 40:25 and ends at 43:31)

**2.6 Decide if these statements are true or false. Then watch the extract and check your answers.**

1 The arms of a boomerang work on the same principle as the wings of a plane.
2 Einstein stated that every action must have an equal and opposite reaction.
3 When you throw a boomerang, the arms of the boomerang travel faster than the centre.

**2.7 Complete the sentences using words and phrases from the box (you will not need to use all of the words). Then watch the extract again and check your answers.**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| upwards | as well | lift | tilt | slower | front | faster | downwards |
| gust of wind | symmetrical | stable | flow | ellipsis | spin | third law of motion | |

1 When air flows over the arms of a boomerang you get a _____ .
2 If air is being pushed downwards, the wing must be being pushed _____ .
3 Boomerang-shaped objects are not very _____ .
4 The _____ means that not all parts of the boomerang are travelling at the same speed.
5 When you're walking towards the _____ of the train you're travelling _____ than the train.

## Follow up

**Study tip**

*When you are reviewing your notes, it is useful to think about the following questions so that you can ask the lecturer in a seminar or in a supervision.*

- *What did you learn from the lecture?*
- *Is there anything that you didn't understand in the lecture?*
- *What questions would you like to ask the lecturer?*
- *Can you find out any further information online or in the library?*

**3.1 Research the questions from 2.6 by using one or more of the following research strategies. Spend 45–60 minutes conducting your research online and write one paragraph for each of the three questions.**

**Use the 'advanced search' feature of your usual search engine to design a search that will give you the best results. For example, some search engines will let you do some or all of the following:**

- choose the language of the search
- limit your search to academic websites
- limit your search to pdf files
- limit your search to recent publications
- limit your search to websites similar to one that you know to give useful results for a particular subject

Find the information through an academic portal, such as the Social Sciences Information Gateway (www.ariadne.ac.uk/issue2/sosig).
Use Google Scholar (http://scholar.google.com) to research academic papers on the subject.
Find a newsgroup/discussion group for people interested in that topic and search its messages for information related to the topic. If you don't find anything suitable, you could then post a question to be answered by an expert.