Aims:

- To introduce students to the idea that headlines can be misleading and that bias can influence the reporting (or even results) of research.
- For students to discuss and then participate in a simple RCT to test a headline-grabbing claim.
- For students to compare newspaper headlines to press releases about scientific research and identify differences between the two.

Use:

- This lesson plan & accompanying PowerPoint has been used with more able students aged 7-11, but please do adapt it to suit different audiences.

Areas for extension:

- Slide 15 – could allow students to identify the 'PICO' of the trial from the article – what were the 'patients', the intervention, the comparison and the outcomes reported in this summary? This could then be repeated using the press release (see Slide 16) to allow comparison between the different reports of the trial.
- Depending on the mathematical ability of the group, students could calculate the difference and percentage difference between their own memory tests, or could work as a group with adult support to complete this part of the task. If necessary, it could be left out entirely.

Approx. Time	Content	Resources
Pre	Buy sufficient blueberries for the group. Prepare the memory test trays – 10+ objects on each tray should mean that children struggle to remember them all in a 1 minute viewing. Print off allocation cards – e.g. Slide 23 Optional – replace the photo of the teacher on Slide 1 with one of you!	Two trays containing a range of different objects. Allocation cards.
5 mins	**Display Slide 1** – run through the different people on the slide – ask the students who they would trust and why. Explore different options surrounding their choices (bias, professional background, research knowledge) **Display Slide 2** – Invite students to suggest why they would be more likely to trust and why. Introduce the term 'bias' if this hasn't been used previously. Encourage students to consider that even though the two people are saying the same thing, we may be more likely to trust the research scientist than the manager of a supermarket. Suggest that even though the statements may (or may not) be valid, the risk of bias affects how we view the results. **Display Slide 3** – Ask students how they would overcome bias & introduce the idea of asking questions about claims.	PowerPoint
5 min	**Display Slide 4** – Daily Mail article about blueberries affecting brain function. Identify the claim and ask the students to consider whether they think there might be any bias in the claim. Who is making the claim? Students may pick up on the advertising angle & use of images. If appropriate, identify the idea that researchers may be funded by companies and this might influence outcomes – in this snippet, there is no detail about where the researchers work – it could be for a blueberry smoothie company! **Display Slide 5** – Ask the same questions about the next news article, possibly giving students the opportunity to discuss the article amongst themselves before drawing out details of the claim.	PowerPoint
5 min	**Display Slide 6** – Ask students to identify the claim being made in both the two newspaper stories. Do they believe it? **Display Slide 7** – Find out what students understand about how claims can be tested; get initial suggestions of how they could do a trial to test memory. **Display Slide 8** – Discuss the importance of fair testing and comparison when doing a trial to test a claim. Discuss options for how memory could be tested and what the 'intervention' would be.	PowerPoint

8 min	**Display Slide 9** - Introduction to the trial. Discuss participation options. **Display Slide 10** - Distribute allocation cards by allowing students to pick a card (excepting students who don't like/are allergic to blueberries – these should be non-randomly allocated to group A). **Display Slide 11** – Explain the memory test. **Display Slide 12** – Memory test. Conduct the test with all participants.	PowerPoint Allocation cards Memory test tray 1 Timer Paper & pens
5 min	**Display Slide 13** – Memory test results. Each group works out the average number of items remembered by participants in that group – depending on the students, this is an opportunity for more able students to lead the calculation, or another adult can calculate the average.	PowerPoint Calculator Optional results analysis worksheet
2 min	**Display Slide 14** – Blueberries. Group B eat blueberries. This could be an opportunity to discuss insuring individuals are treated equally (Are blueberries counted out? Distributed by mass? How long do those eating take to eat the fruit?) or dig deeper into participant background (is anyone a regular blueberry eater? Have they had any earlier in the day?).	PowerPoint
5 min	**Display Slide 15** – Analysis of newspaper article – what does the text beyond the headline tell us about the trial that was conducted? Students could work in groups to discuss the article and summarise the trial.	PowerPoint Optional – print out of Slide 15.
10 min	**Display Slide 16** –Analysis of the report. Students identify details about the trial from the university press release, looking specifically at the intervention the rats were given and the outcomes. **Display Slide 17** – Comparison of press release & newspaper article. Encourage students to identify the differences in the two accounts.	PowerPoint Press release page Highlighters/pens
5 min	**Display Slide 18 & 19** – Memory test. Repeat the memory test using a different set of objects – students could be quizzed on why a different set of objects is required.	PowerPoint Memory test tray 2
5 min	**Display Slide 20** – Results Analysis. As with the previous test, students count the number they correctly remembered and each allocation group calculates an average. **Display Slide 21** – Results summary. Identify the averages from each group. Students could calculate the difference and % difference between the first and second test (depending on group ability).	PowerPoint Optional results analysis worksheet
2 min	**Display Slide 22** – Summary –encourage students that they should question why people make claims, particularly about health.	PowerPoint