TOMMY BOWE’S BODY CHECK

Teaching and Learning Unit
A Resource to support Junior Cycle Science Learning Outcomes

BAI  rte.ie/learn  Independent Pictures
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Aim/ How to use these resources

Aim
This set of resources on Tommy Bowe’s Bodycheck is designed for use for use with pupils studying Science at junior cycle. The resources enable them to explore the key skills (including literacy and numeracy) and the learning outcomes of the Science specification. It may be used to guide teachers and students through the process of a Science in Society Investigation (SSI). This, in turn, is good practice for their CBA 2 in year 3. CBA 2 “gives students an opportunity to explore a scientific topic or issue. This could be used to inspire a research project comprising of three activities: initiating research, communicating and evaluating.”

This unit of learning provides the topic, research questions and research findings from a number of scientific sources, enabling students to research a project based on the topic of “Nature Versus Nurture.” They will explore heritable and non-heritable characteristics and the importance of a healthy diet.

During the unit Students will engage with Statement of learning 13

<table>
<thead>
<tr>
<th>Statement of learning</th>
<th>Example of relevant learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. The student understands the importance of food and diet in making healthy lifestyle choices.</td>
<td>Students will collect and examine evidence to make judgements on how human health can be affected by inherited factors and environmental factors, including nutrition and lifestyle choices.</td>
</tr>
</tbody>
</table>

Junior Cycle Science Specification (page 6)

Study of the documentary also allows students to engage with the following Learning Outcomes from Strand one: The Nature of Science – LO1, LO2, LO6, LO7 & LO8. These were chosen because the documentary investigates how science works, as per the focus of Strand 1:

The elements of this strand place a focus on how science works; carrying out investigations; communicating in science; and developing an appreciation of the role and contribution of science and scientists to society. There is a strong focus on scientific inquiry.

Junior Cycle Science Specification (page 11)

AfL and Differentiation
The lessons are designed for an AfL approach. A wide selection of materials is provided to allow a teacher to select particular clips and cater for a variety of student interests and abilities.
The ‘Nature versus Nurture’ Debate

Students will research nature versus nurture in creating an athlete, analyse the information/secondary data they have collected, evaluate the claims and opinions studied (in the documentary and other reading) and draw evidence-based conclusions about the issues involved, with support/guidance by the teacher.

Preparation period

During the course of the unit students will use information from a number of sources and discuss ideas in class. Students should be reminded to gather further information as part of their homework throughout the module.

Presentation of research and findings

Students will present their project, in a format of their choice. Possible formats are below.

<table>
<thead>
<tr>
<th>CBA</th>
<th>Format</th>
<th>Student preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science in Society Investigation (SSI)</td>
<td>The presentation formats can include the following: • a hand-written/ typed report • model building • multimodal presentation • podcasts • webpage</td>
<td>A student will, over a three-week period, research a socio-scientific issue, analyse the information/secondary data collected, evaluate the claims and opinions studied, and draw evidence-based conclusions about the issues involved, with support from the teacher.</td>
</tr>
</tbody>
</table>

Guidelines for the Classroom-Based Assessments and Assessment Task (pages 28-29)

Evaluation and Reflection

Reflection takes place throughout the course of the unit. After the project is complete students will complete a self-assessment form, reflecting on their work.
Teacher Guidelines

Lesson One - Scientific Literacy

Materials Required
1 worksheet (WS 1.3)

Activity 1.1 - Walking Debate

Explores the knowledge, views, preconceptions and misconceptions around the topic. Teacher calls out statements below and students position themselves according to their opinions.

No worksheet needed.

Walking Debate Statements

1. **Athletes are born, not made**

2. **To be a successful athlete, you should be very good at a sport by the time you get to secondary school**

3. **Some people can eat whatever they want, and they will never be overweight**

4. **Only skinny people are healthy**

5. **My parents are bad at Maths so it’s ok if I can’t do it**

6. **Certain nationalities are naturally better than others at certain sports**

Activity 1.2: Class Discussion

Students reflect on the walking debate and gather common themes. No worksheet needed.

Class will discuss Nature and Nurture, and list the common themes, e.g. ‘not everyone has the genes to be…’ or ‘nothing is possible without hard work’, remembering that neither environmental nor genetic factors are sufficient to excel in any sport.

Due consideration should be given to vocabulary. Most students will have heard words such as *genetics, variation and inheritance*; however their understanding and ability to explain and use these term scientifically will vary greatly. As with many commonly used scientific terms, the common meaning may differ greatly from the scientific meaning.

Activity 1.3: Final activity/ Homework

Students will review their current knowledge about scientific literacy by writing down the definition of words provided (Environmental; inherited; nutrition; lifestyle; nature; nurture; characteristics; genetic; organism; DNA; Variation; Trait). Students can be encouraged to discuss/ look up definitions if they don’t know them.

*Worksheet provided (WS1.3)*
<table>
<thead>
<tr>
<th>Scientific term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td></td>
</tr>
<tr>
<td>Inherited</td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
</tr>
<tr>
<td>Lifestyle</td>
<td></td>
</tr>
<tr>
<td>Nurture</td>
<td></td>
</tr>
<tr>
<td>Nature</td>
<td></td>
</tr>
<tr>
<td>Characteristics</td>
<td></td>
</tr>
<tr>
<td>Genetic</td>
<td></td>
</tr>
<tr>
<td>Organism</td>
<td></td>
</tr>
<tr>
<td>DNA</td>
<td></td>
</tr>
<tr>
<td>Variation</td>
<td></td>
</tr>
<tr>
<td>Trait</td>
<td></td>
</tr>
</tbody>
</table>
Materials! required
3! Worksheets!(WS 2.2, WS 2.3 & WS 2.4) provided
Clip 1

Activity 2.1 – Scientific Literacy
Review of Homework
No worksheet required

Activity 2.2 - Inheritable characteristics
• Students will use Worksheet 2.2 and complete the table showing True/false statements before and after viewing the documentary
• Teacher will play Clip 1 from the documentaryStudents will use Worksheet 2.2 again and complete the right-hand side of the table, having now viewed the beginning of the documentary
• They will also consider if the statement is a fact or an opinion
• They will work in pairs to make a list of inheritable traits and then join up with another pair to compare and refine their answers
• This may be followed by a class discussion.
Worksheet 2.2 Provided
Clip 1 available on links below

Activity 2.3 and 2.4 Variation and Inheritance
• Students will use Worksheet 2.3 and fill in the blanks using the correct scientific terminology based on their learning so far
• Students will discuss their answers in pairs, groups or as a class
• Students will use Worksheet 2.4 do the crossword using the appropriate terminology, based on their learning from the previous worksheet
• This could be followed by a classroom discussion.
Worksheets 2.3 and 2.4 provided

Key Word List

<table>
<thead>
<tr>
<th>Environmental</th>
<th>Nature</th>
<th>Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evolution</td>
<td>Nurture</td>
<td>DNA</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Characteristics</td>
<td>Variation</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>Genetic</td>
<td>Trait</td>
</tr>
</tbody>
</table>
Inheritable Characteristics

Make a list in the box below of what you think are inherited traits

Following a discussion with another group of students, write a final list of inherited traits. You may add or remove some from your original list.
You've learned about inheritance, genetics and variation. Now read the words below and try to imagine where they fit into the piece below.

<table>
<thead>
<tr>
<th>Learned</th>
<th>Genetic</th>
<th>Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organism</td>
<td>DNA</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Variation</td>
<td>Protein</td>
<td>Evolution</td>
</tr>
</tbody>
</table>

**My guess** | **Fill in the correct answers**
--- | ---

_________ is any difference between cells, organisms or groups of organisms of any species caused by genetic or environmental factors.

_________ is any living thing.

Genetic factors are passed to the organism by its biological parents through_________.

A gene is the part of the DNA molecule which codes for a_____ which may be responsible for an inherited ____________, for example, their colour.

This means_________ factors will continue to pass from generation to generation.

Environmental factors can be_________ skills such as driving a car or physical attributes such as muscles built by_________.

Variation due to environmental factors is general not passed on to the next generation and so are not considered important in __________.
Student Worksheet 2.4
Inheritance and Genetics

Name ________________________________________________________________

Across
6. A living thing is called an o___________ (8)
7. Scientists can analyse people’s genes by checking their b___________ (5)
10. To be a world class athlete scientists believe you must have a genetic pre-_________ (11)

Down
1. V______ (9) is the difference between cells, groups of organisms or organisms of the same species
2. When taking blood samples, scientists must wear plastic _________ (6)
3. People who respond quickly to training are r__________ (10)
4. The County in Ireland that Tommy Bowe comes from is ________ (8)
5. The part of the DNA that codes for protein is a g______ (4)
8. J_____ Heaslip is an Irish rugby player (5)
9. Tommy’s sister is called H_____ (6)

Created by Puzzlemaker at DiscoveryEducation.com
Across
6 - organism
7 - blood
10 - disposition

Down
1 - variation
2 - gloves
3 - responders
4 - Monaghan
5 - gene
8 - Jamie
9 - Hannah
Materials required
3 Worksheets (3.2, 3.3 and 3.4) provided
Clip 2

Activity 2.1 - Homework Review
Review of homework crossword (Student Worksheet 2.4 from last lesson)

Activity 3.2: Extracting and analysing information, based on active listening
- Students will watch Clip 2 and try to remember as much as possible. Before they start watching the clip, they will be told they are doing a short quiz after.
- The teacher can then distribute Worksheet 3.2 and students will complete an information retrieval exercise based on their memory
- Students will recall 3 important statements and attempt to answer questions to assess their current knowledge
- The class can then share their statements and this should give a near complete list of statements made in the documentary
- Students can attempt the questions. These are then completed through class discussion.
Worksheet 3.2 Provided
Clip 2 available on link above

Worksheet 3.3 provided

Activity 3.3 - Food Constituents
- Following a class discussion, students will use Worksheet 3.3 and develop a full table of food constituents, their purpose and sources.
- Students will demonstrate their command of scientific vocabulary and their understanding of food constituents, sources and function by completing the worksheets individually
- Students will then collaborate to share their knowledge and reduce gaps in knowledge and understanding.
Worksheet 3.3 provided

Activity 3.4 - Two Minute Summary
- Students will use Worksheet 3.4 and write a final two minute summary of what has been learned in the lesson. This enables students to critique their learning, find gaps in knowledge and understanding and provides a study tool.
Worksheet 3.4 provided

Key words
constituents       glycogen         nutrition       lifestyle       source       minerals
carbohydrates     protein            fats             energy         vitamins       kilojoules
A) After you have watched the Clip 2, write down three statements you remember.

1. ___________________________________________________________________________
   ___________________________________________________________________________
   ___________________________________________________________________________

2. ___________________________________________________________________________
   ___________________________________________________________________________
   ___________________________________________________________________________

3. ___________________________________________________________________________
   ___________________________________________________________________________
   ___________________________________________________________________________

B) Now work with another student to share your knowledge. Use the space below to add other statements from the documentary.

C) When you have made a list of most of the statements from the documentary, complete the statements below based on what you have learned so far:-

The number of calories needed by the average man is ________________________.

Scientist do not use calories as a unit of energy. They are not SI Units.

1. Scientists use ______________ as a unit of energy.

2. Energy is __________________________________________________________________
   ___________________________________________________________________________

3. Protein is needed by the body for _____________________________________________
   ___________________________________________________________________________
   ___________________________________________________________________________
   ___________________________________________________________________________

4. Protein can be found in ___________________________________________________________________________
5. Carbohydrates are the body’s source of ______________________________________________________
   __________________________________________ and can be found in ____________________________________
   __________________________________________

6. There are three main types of carbohydrates: __________________, __________________ and  
   ______________________________. Protein and carbohydrates are only two of the basic food constituents.
   The other four are

7. __________________________________________.
8. __________________________________________.
9. __________________________________________.
10. and __________________________________________.
11. Glycogen is an __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________

Work in pairs to make a list of the foods which Tommy eats and explain why he eats it

<table>
<thead>
<tr>
<th>Food</th>
<th>Why I think Tommy eats this food?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
List of the Statements made in Clip 2 for Worksheet 3.2

Tommy eats up to 5000 calories a day.

The average number of calories for a normal adult male is 2500 calories. Tommy is around 16 stone in weight.

Eating food at the right time is important.

Protein and carbohydrate before exercise helps restore glycogen.

Glycogen is an energy source for the body and helps restore muscle fibres.

Tommy eats between 200-300 grams of protein each day.

Tommy mentions eating chicken breasts and turkey roll.
Use the last worksheet (3.2) to help you to complete the table

Food consists of six constituents which are

<table>
<thead>
<tr>
<th>Protein</th>
<th>Carbohydrates</th>
<th>__________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>_________________________</td>
</tr>
<tr>
<td></td>
<td></td>
<td>_________________________</td>
</tr>
</tbody>
</table>

Complete the following table by filling in the function and source of Protein and Carbohydrates. Then add at least one other food constituent you have learned about so far in the blank rows.

<table>
<thead>
<tr>
<th>Food Constituent</th>
<th>Function</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protein</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Carbohydrates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Worksheet 3.4
Two minute summary

Without looking over today’s work, set a stop watch for two minutes and write a list of everything you can remember (you don’t need to write full sentences - words or bullet points are fine).

Compare your work with another student’s work, then note down important ideas, words or definitions you forgot.

Note down one or two things you have learned in this unit and which you would like to find out more about.
Teacher Guidelines

Lesson Four - Science Careers

Materials required
Worksheets (4.2, 4.3 and 4.4) provided
Clip 3

Activity 4.1 – Homework review
• Students will do a review of lesson 3 homework
• The two-minute review helps to identify gaps in student knowledge / understanding.
No worksheet needed

Activity 4.2 – Information Retrieval
• Students will answer information retrieval questions after watching Clip 3
• Students will demonstrate their understanding by giving their own examples of what they learn in the clip
• Students explore scientific understanding and creativity and link with Project Maths curriculum
Worksheet 4.2 provided

Activity 4.3 - Assessment of the Impact of Scientific Ideas
• Using an inheritance concept cartoon on Worksheet 4.3, students will work together and consider the possible impact of genetic inheritance on people’s lives
• Students will relate the concept of inheritance to their own lives
Worksheet 4.3 provided

Activity 4.4 - Homework (Researching Science Careers)
• Students will demonstrate their learning and understanding from the clip and relate what they have learned to their personal experience and ambitions using the questions on Worksheet 4.4 as a stimulus.
Worksheet 4.4 provided

Key words

<table>
<thead>
<tr>
<th>Environmental</th>
<th>Nature</th>
<th>Genetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inherited</td>
<td>Nurture</td>
<td>Organism</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Variation</td>
<td>DNA</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>Characteristics</td>
<td></td>
</tr>
</tbody>
</table>
Answer the questions below after watching Clip 3 from the documentary

1. What do you think is Professor Cathy Craig’s area of expertise and why?
   ____________________________________________________________________________________
   ____________________________________________________________________________________
   ____________________________________________________________________________________
   ____________________________________________________________________________________

2. What parts of the body are important for deception?
   ____________________________________________________________________________________
   ____________________________________________________________________________________
   ____________________________________________________________________________________
   ____________________________________________________________________________________

3. Give an example a 2-D and a 1-D object.
   ____________________________________________________________________________________
   ____________________________________________________________________________________
   ____________________________________________________________________________________
   ____________________________________________________________________________________

4. What does the word dimension mean?
   ____________________________________________________________________________________
   ____________________________________________________________________________________
   ____________________________________________________________________________________
   ____________________________________________________________________________________

5. We live in 4 dimensions, what do you think this means?
   ____________________________________________________________________________________
   ____________________________________________________________________________________
   ____________________________________________________________________________________
6. From the evidence in the clip do you think deception is important to the rugby player? Explain your answer.

___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________

7. Is the "art of deception" an inherited or non-inherited trait?
___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________

8. What type of light is used to bounce off the reflectors and what do you know about this type of light?
___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________

9. Suggest other possible uses for the imaging technology used in this clip.
___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________

10. Tommy correctly anticipates the movement of his opponent 83% of the time. If the total number of attempts made by Tommy is 1662, what number of opponent moves were correctly guessed?
___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________
___________________________________________________________________________________
Look at the cartoon above and discuss the following questions in groups before answering.

What do you think is the message of the cartoon?
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Why do you think the children want to follow similar occupations to their parents?
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Would genetics play a role in the children’s ability to follow their chosen careers?
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

What is your dream job? Do you think your genetics have any impact on your future occupation?
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
Student Worksheet 4.4
Researching Science Careers

Name _____________________________________________________

In the video there are examples of people who work in science, such as Nutritionist, Sports Scientist, Psychologist.

Think about what you know about the three careers above. Choose one of the above that you know about or which interests you and write about it below. If you don’t know about any of them, you will need to do some research.

The career I have chosen to write about is ________________________________

Here write a description of this career and what it involves
_______________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

The science knowledge is needed for this career is...
_______________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Scientists in this area have solved the following problems:
_______________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

An example of one important scientist in this field and the ways they worked with others to solve an important problem is:
_______________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Teacher Guidelines
Lesson Five - The value of different forms of evidence in Science

Materials required
Worksheets provided (5.2 and 5.3)
Clips 4 and 5

Activity 5.1 - Scientific Careers
Review of homework from lesson 4
No worksheet needed

Activity 5.2 & 5.3: Tug of War

- Students will watch the final part of the documentary (Clips 4 and 5)
- Before completing Worksheet 5.2 the class might discuss what they think the Tug of War Technique is (the idea of conflicting ideas)
- Using Worksheet 5.2, students will assess and evaluate evidence in the nature v nurture debate. They will make their own conclusions based on evidence and they will look for one assumption made by one of the participants and for one statement backed up by evidence. Students will rate evidence on a scale of 1-5 from very weak to very strong
- Students will then complete a peer review of the evidence they have discovered using Worksheet 5.3. This allows them to explore the scientific value of the evidence they use in their arguments.
- A class discussion will encourage students to see the importance of both genetic and environmental factors in our health and lifestyles

Worksheets 5.2 and 5.3 provided

Homework:
Using information and research completed over the course of the unit, students can now consider the project that they will do. This is a good way for students to learn the skills for CBA 2, Science in Society Investigation.

Key words

- Environmental
- inherited
- nutrition
- lifestyle
- nature
- nurture
- Characteristics
- genetic
- organism
- DNA
- variation
Name ____________________________________________________

After watching the final clips from the documentary, write a paragraph below starting with either
I think athletes are born or
I think athletes are made
Use the sentence starters to help you write your paragraph.

I think that athletes are __________________________________________
I think this because ____________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

The evidence I have for this point of view (e.g from the documentary) ______________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

The source of my information is ____________________________________________
________________________________________________________________________
________________________________________________________________________

My rating for my evidence is

Evidence Ratings
1. Very Weak evidence, e.g. anecdote
2. Weak evidence e.g. website/ newspaper opinion
3. Fairly strong evidence e.g. reputable newspaper/ website/book/ documentary
4. Strong evidence e.g. book/ newspaper/ documentary/ website referencing scientific study
5. Very strong evidence e.g. accepted scientific fact
Student Worksheet 5.3
Peer Review

My Name: ___________________________________________________

My Classmate's Name: _____________________________________________

My Classmate’s opinion and rating

I agree/disagree because

What evidence do I have to agree /disagree?

I agree/disagree with the rating given by my classmate for the evidence because
**Science in Society Investigation**

**Possible project topics inspired from this unit of work**

- Famous Twins/ Siblings in sport
- My family tree, similarities and differences between the generations
- What factors make a good… (Rugby player/ Soccer player/musician/dancer/scientist)
- The genetic differences between a gymnast and a rugby player
- The importance of good nutrition for a sports person
- How sports scientists can improve performance

**Possible Project Formats**

- A 5 minute oral presentation to your class
- An A2 poster
- A 5 minute podcast
- A Powerpoint presentation, approximately 10 slides
- A cartoon dialogue of approximately 10-15 illustrations.

**Tips for students:**

1. Make use of the activities you have completed throughout
2. Plan carefully
3. Read your sources but write only in your own words
4. Use scientific language where possible
5. Use pictures and colour
6. Be creative. Try to include some original ideas
7. Follow your own interests but ensure your work is relevant to your heading.
Classroom-Based Assessment 2: Science in Society Investigation

The Science in Society Investigation (SSI) gives students an opportunity to explore a scientific topic or issue. The development of research and reporting skills are central here, for example searching for information, discriminating between sources, documenting sources used, presenting evidence in a report, applying knowledge of science to new situations and analysing different points of view on the issue, drawing conclusions and communicating personal opinion(s) based on the evidence.

The SSI is an individual research project comprising of three activities: initiating research, communicating, and evaluating. Students may collaborate with classmates in gathering relevant information and data, but each student must individually produce evidence to meet the Features of Quality of this assessment.

Figure 2: Process for conducting the SSI

Science in Society Investigations promote student engagement through:

- Choice about the scientific topic or issue on which to focus
- Choice about communication formats
- The possibilities for student collaboration.

The main learning outcomes assessed by the Science in Society Investigation are:

| Nature of Science | 1, 2, 4, 6, 7, 8, 9 and 10 |
## Features of Quality for The Science in Society Investigation

<table>
<thead>
<tr>
<th>Exceptional</th>
<th>Above expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Chooses an interesting or novel topic and research question</td>
<td>- Chooses an interesting or novel topic and research question</td>
</tr>
<tr>
<td>- Finds information about the topic from a large number of varied and balanced sources, and gives a complete reference list</td>
<td>- Finds information about the topic from a number of balanced sources, and gives a complete reference list</td>
</tr>
<tr>
<td>- Evaluates the reliability (relevance, accuracy and bias) of the sources</td>
<td>- Discusses the reliability and quality (relevance, accuracy and bias) of the sources</td>
</tr>
<tr>
<td>- Considers the quality of the information collected from the different sources</td>
<td>- Positions the topic as science in society; explains the relevant science and the impact of the topic on society and/or the environment</td>
</tr>
<tr>
<td>- Clearly positions the topic as science in society; explains the relevant science and the impact of the topic on society and/or the environment</td>
<td></td>
</tr>
<tr>
<td>- Presents the investigation in a very well-structured way (that is clear and easy to read) using relevant scientific terminology and informative representations; uses an innovative approach that truly enhances the work</td>
<td></td>
</tr>
<tr>
<td>- Explains different sides of the argument in detail</td>
<td></td>
</tr>
<tr>
<td>- Evaluates all the information; views on the chosen topic are considered and discussed in depth</td>
<td></td>
</tr>
<tr>
<td>- Links the information to the topic under investigation</td>
<td></td>
</tr>
<tr>
<td>- Reviews all the information using science explanations</td>
<td></td>
</tr>
<tr>
<td>- Gives a personal opinion which is justified by referring to the information evaluated</td>
<td></td>
</tr>
</tbody>
</table>
- Presents the investigation in a well-structured (that is clear and easy to read), using relevant scientific terminology and informative representations
- Explains different sides of the argument

- Evaluates most of the information, understanding how particular sources might bias scientific practices and knowledge
- Links the information to the topic under investigation
- Reviews most of the information using science explanations
- Gives a personal opinion linking the information to the argument

### In line with expectations

- Chooses a topic and research question with some teacher guidance
- Finds some useful sources of information about the topic and gives a complete reference list
- Gives some consideration to the reliability or quality (relevance, accuracy and bias) of the sources

- Mentions in passing the impact of the topic on society and/or the environment.
- Presents the investigation in a structured way using relevant scientific terminology
- Explains different sides of the argument

- Evaluates most of the information, understanding that particular sources might bias scientific practices
- Gives a personal opinion with some explanation

### Yet to meet expectations

- Chooses a topic but is given the research question
- Is directed to sources of information about the topic
- Uses very few sources with little evidence of what the sources are

- Presents the investigation using some scientific terminology
- Presents the investigation in a way that is somewhat structured

- Evaluates some of the information
- Gives a personal opinion without explanation or a link to the original question

Junior Cycle Science, Guidelines for the Classroom-Based Assessments and Assessment Task, March 2016
http://www.curriculumonline.ie/getmedia/02768f26-b9f4-45e7-8e19-f5efdf223d71/Assessment-guidelines_Science_Jan-2016-(1).pdf
# Template for Student Reflection

<table>
<thead>
<tr>
<th>School Name</th>
<th>Student Name</th>
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<tbody>
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</table>

**The part I played in this task including material used/ accessed:**

---

**Personal Reflection**

<table>
<thead>
<tr>
<th>One important thing I learned from doing the task:</th>
<th>Things I would change or try to improve on:</th>
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</thead>
<tbody>
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</table>

## My Vocabulary Organiser

Name ________________________________________________

<table>
<thead>
<tr>
<th>New words which I was able to work out from the context</th>
<th>Words which I heard but I still didn’t understand and had to look up</th>
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</thead>
<tbody>
<tr>
<td><strong>Word</strong></td>
<td><strong>Meaning</strong></td>
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</table>
MY THOUGHTS ON INHERITANCE

I THINK.....

BUT WHAT IF.....

OK, BUT NOW I THINK...

WHY DO YOU THINK THAT, WHAT EVIDENCE DO YOU HAVE?

NOW I THINK...

BECAUSE...

Name _________________________________________________________
The heart

respond well to exercise

sections of DNA that make proteins

Athletes cannot perform at their best without

our heart and lungs need to work harder

International Hockey

Tarsia Puzzle
the ability to drive is

our eye colour is

evemal gaa club

protein is needed for

cell energy producers

carbohydrate is

protein
Tommy Bowe’s Body Check

Genes are responsible for growth and repair. They direct the formation of the body’s source of energy.

Mitochondria are the body’s powerhouses. They generate energy for the body’s cells when we exercise.

DNA is short for Deoxyribonucleic Acid. It is transferred from parent to child.

Inheritable characteristics can be passed from one generation to the next.

Good nutrition is necessary for the body to function properly.

Deoxyribonucleic Acid is passed from one generation to the next.

As a child, Tommy played for the Irish national team, but not in his title.

Tommy’s sister Hannah played for the Irish national team.

Mitochondria are the body’s sources of energy.
genes are the body’s source of energy. the heart responds well to exercise. sections of dna that make proteins are inherited. dna is short for deoxyribonucleic acid.

protein is needed for growth and repair. the ability to drive is not inherited. our eye colour is inherited. protein is needed for our heart and lungs need to work harder.

inherent characteristics can be passed from one generation to the next. protein is needed for athletes cannot perform at their best without good nutrition.

dna is short for deoxyribonucleic acid. emerivale gaa club is a child tommy played for.

tarsia solution
ABOUT THESE RESOURCES

The Broadcasting Authority of Ireland (BAI) has partnered with RTÉ Learn to bring media into junior cycle classrooms.

**Broadcasting Authority of Ireland (BAI)**
The BAI is the Irish regulator for radio and television. The BAI also funds Irish content for Irish audiences called the Sound & Vision Scheme using a portion of the television licence fee.

**RTÉ Learn**
RTÉ (Raidió Teilifís Éireann) is Ireland’s national public-service media organisation. Both education and science have been identified by RTÉ as being strategically important to the organisation and to the Irish people.

RTÉ Learn is a dedicated resource for teachers and educators showcasing a diverse range of educational content from across RTÉ, ideal for both formal and informal learning.

**Independent Pictures**
Independent Pictures makes factual and factual entertainment programmes and formats. Independent produced the documentary Tommy Bowe’s Health Check.

Through this initiative all partners are delighted to facilitate access of this content to a wider Junior Cycle student and teacher audience; to assist students in their Junior Cycle preparation and to address Media Literacy.

**Credits**
Written by Emer Brady, Pauline Kelly and Mary-Elaine Tynan.
Designed by Liza-Jane Smith.