Niamh Barry JC Science 2017 Specification

Learning Outcomes:

Nature of Science	Students should be able to organise and communicate their research and investigative findings in a variety of ways fit for purpose and audience, using relevant scientific terminology and representations
Biological World	Students should be able to describe asexual and sexual reproduction; explore patterns in the inheritance and variation of genetically controlled characteristics

Students are asked to host the Late Late Show on RTE and the first guest on is Gregor Mendel. Students work in pairs: number 1: Ryan Tubridy the presenter, number 2: Gregor Mendel. The students work from the script below.

Students swop roles and repeat.

An Interview with Gregor Mendel

CHARACTERS: Ryan, Gregor Mendel

Ryan: Good evening. Tonight we have a special guest in our studio. His name is Gregor Mendel. Mr. Mendel was an Austrian friar and a scientific researcher more than 150 years ago. He travelled in a time machine to get to our interview today. Thank you for coming.

Gregor Mendel: It was a long journey, but I'm glad to be here.

Ryan: Our viewers are interested to hear about how your study of peas changed the way we view heredity.

Gregor Mendel: I'm glad to hear that my work is important. I started my research in the 1850s.

Ryan: I have some questions I'd like to ask you, if you don't mind.

Gregor Mendel: No, I don't mind. Ask any question you'd like.

Ryan: My first question concerns your choice of plants. Why did you use pea plants?

Gregor Mendel: Pea plants grow and reproduce quickly, so I was able to breed many plants in a short period of time. Also, they have a wide variety of traits, or characteristics, so I was easily able to record the results of the cross-pollination of different varieties. I studied many generations of pea plants to reach my

conclusions. My colleagues at the monastery used to grumble because we ate so many peas.

Ryan: Now I understand why you used peas. Can you describe cross-pollination?

Gregor Mendel: I transferred pollen from the flowers on certain plants to the flowers on other plants. For example, I transferred pollen from short-stemmed pea plants to other short-stemmed pea plants. I noted that the offspring from this combination were always short-stemmed, just like the parents. When I crossed tall-stemmed plants with other tall stemmed plants, however, I noted that tall and short plants grew. To me, this meant that the short-stemmed trait must be present somewhere in the genetic makeup of the tall stemmed pea plants.

Ryan: And for those of us who don't have a background in genetics, what did you conclude from your experiments?

Gregor Mendel: I determined that each parent pea plant must contain two characteristics for a particula trait. When two plants with different traits, such as tall and short stems, were bred, the offspring showed only one of the traits. This was then called the dominant trait, and the trait that did not appear was called recessive.

Ryan: How do you think the traits are inherited?

Gregor Mendel: From the evidence I gathered in my research, I concluded that each parent contributes one factor to the plant in the offspring generation. So, the offspring in the first filial generation gets one factor from the female parent and one factor from the male parent. The two factors interact to produce the resulting trait.

Ryan: Why is this called the study of heredity? What was it about your experiments that changed the way we look at heredity today?

Gregor Mendel: Until the time I conducted my research, people believed that the blending of traits resulted when two complex life-forms such as plants reproduced. I disproved that hypothesis by crossing two different flower colours, for example. I never saw a mixture of purplish-white flowers on a plant. The result was always purple or white.

Ryan: Can you give us an example with humans?

Gregor Mendel: Sure. Some people have unattached earlobes; that is, a part of the lobe hangs down from the side of the head. This is a dominant trait. The

recessive trait is an attached earlobe. The lower part of this type of earlobe attaches directly to the side of the head. If a person's mother has attached earlobes and the father has unattached earlobes, then the person will have attached or unattached earlobes, but not something in between. Not all traits follow such simple patterns of inheritance, but some do.

Ryan: Well, we hope you are aware that your work is important to the scientific community, although not everyone recognized your findings during your time. By 1900 your work was recognized as important to the world of biology, specifically to the study of genetics. Thanks again for your time this evening. We are fortunate to have had this opportunity to speak with you, Mr. Mendel. Have a pleasant trip back through history