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| **Session 12:** | **Virtual Labs** |

## 

**Skills developed**

Use of virtual labs to perform an even wider range of experiments

## Assessed criteria

Criteria E: AIE

**Research Questions**

“How can bird breeders create just the right bird?”

“What techniques are used in the lab for genetic fingerprinting?”

**Background Information**

1. To breed animals, you need to know a bit about genetics. Professional animal breeders look for specific traits as buyers are very picky. Take for example pigeon breeders, they can earn millions of euros if they are able to breed just the right type of pigeon which are used for races. Follow the link below and learn with a game how pigeon breeders need to understand genetics to breed just the right bird.

Follow this link and the instructions on the website to perform your own investigations:

*NOTE: If the link doesn’t work in Chrome, please use Safari or Edge instead.*

<https://learn.genetics.utah.edu/content/pigeons/pigeonetics/> (Not available at the moment)

TASK:   
Write a summary of the main takeaways of this activity. What did you learn about the importance of genetics for the breeding of pigeons? Add this summary to a new page in the laboratory section of your OneNote portfolio.

1. It is common to hear about genetic testing on the news or on TV and films, but how is it done? The amount of DNA recovered form a patient or from a crime scene in tiny. Scientists have developed techniques to amplify the amount of DNA in samples, and then sequence and analyse it.

Follow this link and work your way through the 5 virtual labs (not all might be available):

<https://learn.genetics.utah.edu/content/labs/>

If the PCR lab above is not working, use this one instead:

PCR: <https://media.hhmi.org/biointeractive/vlabs/bacterial_id/index.html>

*TASK: PCR lab*

1. What does “PCR” stand for and what is the purpose of PCR?
2. Summarize the process of PCR in a diagram. Include all the steps in the right order.
3. What are primers? Why is a primer added?
4. After eight cycles, how many copies of the desired DNA have been synthesized?

**Results**

Add the answers of the tasks to the laboratory section of your OneNote portfolio.