## Lesson 22-23 – Activity Sheet

## Getting Started

## Artificial intelligence (AI) and machine learning (ML) are terms that are often used interchangeably but are not quite the same thing.

## Artificial Intelligence is the concept of machines being able to carry out tasks in a way we would consider smart – it might be complex calculations or an interactive manikin in a museum

## Machine Learning is an application of AI where the machine learns for itself and adapts to changing situations by processing large sets of data – eg your home smart speaker, learning to recognise the different voices of people in the family or a cancer detection systems that improves its detection rates as it experiences more X-rays?

## Success Criteria

* Understand what artificial intelligence and machine learning is
* Consider ways that AI and ML can be applied
* Devise an algorithm for an AI Healthcare robot

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| **AI Design Challenges** | | | | |
| **Idea** | **Describe how it would work** | **What sensors would it need?** | **Ethical or Moral Concern** |
| Pooper Scooper |  |  |  |
| Robotic Cleaner |  |  |  |
| Robot Teacher |  |  |  |
| Robot Baby Sitter |  |  |  |
| Healthcare Robot |  |  |  |

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| **Healthcare Robot** |
| **Design/Plan your algorithm for Healthcare Robot** |

## Pro-tip

* If you use the onboard temperature sensor – you will have to take into account that this measures the temperature of the CPU – so breathing on this will either raise or lower the temperature which you can then use to work out the body temperature by calculating the difference
* The XD58C pulse sensor is a single wire analogue sensor and will require 3.3 – 5v to run so use an external power source and not the 3v output from the micro:bit
* The BMP180 sensor has a pre-built block – search for BMP180 in the extensions

## Test Time

* Take a temperature reading using the micro:bit
* How could you make a case to enable temperature or pulse readings to be easily taken?
* Demonstrate how you could warn patients of health problems

## Stretch Tasks

* Utilise an external sensor such as BMP180 or XD-58C if available
* Design/Create a method of enabling the sensor/micro:bit to be attached to a patient more easily
* Identify other areas of healthcare that your robot could monitor
* Identify and explain the moral/ethical uses of robots for home healthcare

## Final Thoughts

* In today’s lesson we have discussed at AI and ML. We have looked at how these technologies are being developed and used in the modern world to make our lives easier or healthier
* We have discussed healthcare robots; discussed the ethics of using them and have designed an AI healthcare system that monitors patients and warns of problems