**Teaching Guide**

**Cyberfirst Adventurers**

|  |
| --- |
| Module Plan 2-Patient Zero |
| Preparation |
| Teacher will need a projector with sounds to present the video and PowerPoint Presentation. Students will need access to the student worksheet, video tutorials and .xls file. They will need a device with Excel installed in order to complete the activities. They also require internet access with the ability to access Google street view.Students will need headphone to listen to the tutorials. |
| Learning Objectives |
| * Understand the concept of using Open Source Intelligence (OSINT)
* Understand what is meant by the term big data
* Understand the difference between the dark web and deep web
* Use data analysis tools to form and support conclusions
 |
| Key Vocabulary  |
| Open Source Intelligence, Big Data, Dark Web, Deep Web, Data Analytics |
| Structure | **Resources** |
| Starter (suggested time 8 minutes)Teacher shows video-How private is your personal information?Sharing of lesson objectives OSINT, mapping and data analytics (suggested time 3 minutes)Introduce the concept of using Open Source Intelligence (OSINT), open-source tools as well as analytical skills are used to build up a picture of a target individual or organisation. Talk about what OSINT is, even something as simple as looking up someone on social media, etc.Dark Web (suggested time 2 minutes)Introduces the Dark Web, which can be a potential minefield especially as hopefully none of the students have explored it. Just explain the concept of what Dark Web is, and probably best to steer clear of naming examples etc. This is really to aid in the background scenario of the exercise.Pigeon Flu (suggested time 2 minutes)The exercise is based on a fictional scenario and set of data relating to an outbreak of Wanderer’s Folly. Anonymised medical data obtained during a recent attack on the NHS and found to be available on the Dark Web has been made available to the students.Lab- Identifying Patient Zero (suggested time 35 minutes)Teacher to brief the students on what is the aim of the lab, what the resources are and where they are located.The students are tasked with identifying patient zero and identifying some information about the patient within the data. There is also an OSINT element to the exercise. The students are asked for information that is not within the anonymised dataset, for example, likely car colour, national football team supported. Provide students with the worksheets and explain to them to open the spreadsheet provided in Excel.Task 1- Dataset TaskThere are approximately 3000 records in a random order containing different values. The students need to sort the data by the year admitted, month admitted and day admitted. There will be multiple records where there are patients admitted on a series of days. Tutorial 1 is there to help students with sorting data in ExcelThe students must then look at the duration of symptoms to identify the individual who although was admitted later, had the earliest signs of illness.It should lead the students to this postcode SY5 8NF- Before moving on ensure that they all understand how this is the earliest. Task 2-Open Source ToolsStudents are to use the postcode and Google Street view. Tutorial 2 will help students with this task if needed. Through navigating the street, they will find only one individual who meets the age criteria, washing his car, outside what could be his house, where an England flag is flying.There is only one street view photo (as at 29th December 2016), which has one person matching the description in the patient record (aged 75).The students are asked questions such as:What colour is his car? If the car is parked outside the individual’s home, what national football team does he support? What is the house number of the individual’s neighbour?Through using street view and navigating the road they can see the car is red, and the attached England flag. Through looking at next door’s two wheelie bins they can identify the neighbour’s house is number 125. Looking at the actually house on street view the house number is quite blurry, but it looks like 124, by looking at other houses up and down the street they can confirm that the house with the flag on is 124, therefore the full address would be; 124 Caradoc View, Hanwood, Shrewsbury SY5 8NF.Plenary (suggested time 4 minutes)The answers are on M2-Student Answers.doc Use this slide to open a discussion starting with the last question within the Patient Zero exercise – do they think that the information was anonymised sufficiently? They may well ask what that means as a question, so explain data anonymization/sanitation, mention briefly the Data Protection Act and what that means for individuals and companies. Get them to consider data they upload to various sources, posting a video on YouTube for the world to see, etc. Explain how easy it can be (as they’ve just seen) to identify someone given, sometimes, very little information to start with. Talk about big data and what that means to/for a company, think trends for car/health insurance, etc., or indeed fraud protection.Careers (suggested time 6 minutes)Use this slide to describe careers relating to the demo that has just been undertaken. | How private is your personal information.mp4Teacher PowerPoint slide 2-4Teacher PowerPoint Slide 5Teacher PowerPoint Slide 6Teacher PowerPoint Slide 7Teacher PowerPoint Slide 8Teacher PowerPoint Slide 91. Sorting data.mp4Teacher PowerPoint Slide 102. Google Street View.mp4M2-Student Answers.docTeacher PowerPoint Slide 11Teacher PowerPoint Slide 12 |