Explain referential integrity and the purpose of primary keys

When tables are linked together and a primary key is found in another table, it is called a foreign key. Referential integrity keeps the relationships between tables that are linked together stay consistent. For example if you have two tables such as a booking table and a payment table and assign passenger IDs (primary keys) to both of the tables, referential integrity would make sure that all records between those two tables will be corresponding. If a user tries to add any records in the foreign key, it will not be able to be done as it already contains a corresponding record. Also if you were to delete any records in either the booking or payment table, because they are linked, referential integrity will make sure to update it in the linked tables. When tables are linked and you have a foreign key, referential integrity does not allow you to delete records from the primary key if its records are already being used in another table that it is linked to, for example in a table that has details of flights, you cannot delete a flight ID due to the fact that it will be linked to other tables such as a booking table and other passengers that have booked that particular flight.

Primary keys are unique sets of numbers that are used to identify someone or something in a table, for example in a database, primary keys will be given to each individual on the table so that they can all be identified when needed if mixed into other tables. For example, in retail, when you order an item at Argos, you would have to list the item number (which would be the primary key) to the staff at the till; they will then check the number to see if the item is in stock so that you are able to purchase it. Without the primary key they would have to search a long list of names through their database just to find the item, which could take hours, therefore by having primary keys it speeds up the process of being able to find items in a store. When building relationships between tables, for example in a one-to-many relationship, in the primary key table, it would contain one record that links to either many records in the table, one or even no records in the tables it is linked to. For example in a one-to-many relationship, if a customer has booked a flight, the primary key containing their record would link to a booking table, and a flight table and also a payment table.