

Tablets of Stone

In an ancient city there are a number of very important Governors. These Governors decide how the city is run and make very important decisions. They each live in different houses all over the city.

The Governors often want to communicate, they need to send and receive messages all over the city. Governors are identified by their house number and they all have access to a group of messengers whose job it is to deliver the messages.

The only way to send messages is by writing them on large rectangular stone tablets, which the messengers carry to their destination. The stone tablets are of a fixed size and can only fit 6 pieces of information on them. One piece of information can be one letter or one number. Messages are often split over a number of tablets, and as these tablets are very heavy they can only be carried one at a time.

The messengers cannot be trusted to always deliver the message correctly as they are forgetful and lazy. They often stop for long breaks during working hours and even try to escape from the city.

The Governors want to find a way of making their communication reliable, they want to develop a set of rules that they will all follow. By doing this they can tell whether or not their message has been delivered and if the message was correct. The Governors have already decided that the destination should be written on the tablet.

In your groups your task is develop the rules that the Governors will use to communicate...

What's it all about?

On the internet, data is broken into packets for transportation. However, the channels in which these packets travel is not always reliable. Individual packets sometimes are damaged, lost or lose their ordering.

In Tablets of Stone, tablets are packets and their contents is data. Packets contain both data and *header* information. The size of the header information affects how much data can be transferred – so a balance has to be reached, as packets are of finite size.

Students will find that they will need to swap some of their data boxed for information such as packet number and total packets, or whether or not the packet is an acknowledgement packet. Due to this information taking up data boxes, overall more packets will be needed.

Internet protocols such as TCP and UDP balance these factors to create reliable and efficient data transfer.

This activity is adapted from one available through the “Computing Science Inside” project (csi.dcs.gla.ac.uk).