CS Unplugged is a book of activities that illustrate computer science principles without using a computer.

Activities are short and are designed to be easily integrated into classes and include exercises and lesson plans for teachers.
Since computers only have a limited amount of space to hold information, they need to represent information as efficiently as possible. This is called compression.

By coding data before it is stored, and decoding it when it is retrieved, the computer can store more data, or send it faster through the Internet.

This exercise illustrates how a children's rhyme can be compressed.

YOU CAN SAY THAT AGAIN!

PITTER PATTER
PITTER PATTER
LISTEN TO THE RAIN
PITTER PATTER
PITTER PATTER
ON THE WINDOW PANE
YOU CAN SAY THAT AGAIN!

The arrows and boxes are presented with 2 numbers.

- PITTER PA(7,4)
  - 7: count back 7 positions
  - 4: copy 4 letters/spaces
- Sometimes boxes point back to a box with a blank inside.
• How much information is there in a 1000-page book? Is there more information in a 1000-page telephone book, or in Tolkien's *Lord of the Rings*?  
  ▪ If we can measure this, we can estimate how much space is needed to store the information.
• This activity introduces a way of measuring information content.

• Can you read the following sentence?

  Ths sntnc hs th vwls mssng.

• You probably can, because there is not much "information" in the vowels.
LIGHTEST & HEAVIEST

• Computers are often used to put lists into some sort of order (e.g. names into alphabetical order, appointments or e-mail by date, etc.)
  ▪ If you use the wrong method, it can take a long time to sort a large list into order, even on a fast computer.
• In this activity children will discover different methods for sorting, and see how a clever method can perform the task much more quickly than a simple one.

BEAT THE CLOCK

• This activity illustrates structures used in parallel sorting networks.
• Kids sort data by walking through a sorting network laid out on the floor.
• The network simulates how a parallel network would sort data.
  ▪ Kids find out that data can be sorted a lot faster in parallel!