Will It Scan?

Error Detection and Correction
Learning Activity
**Will It Scan? - Activity Instructions**

**Learning outcome:** Learners will be able to develop an awareness for when error detection and correction is happening.

**What you need:**
- Printed QR Codes
- QR Code scanner
- Black felt tip marker, whiteout *(note: pencils are not suitable)*

*Below are a few pre-made QR codes for your convenience. You may choose to use any QR code that is suitable for your students.*

**Instructions:**

1. Select the QR code you are going to share with your students. Print enough for students to work in pairs or independently.

2. Have a copy for yourself to demonstrate with. *(Think about what size and how you’ll be able to display this so all students will be able to see.)*

3. Have a black felt tip marker and/or whiteout available for changing the small squares on the QR code to the opposite colour.

4. Scan a QR code in front of the class to show what message it contains.

5. Select one square that is not part of the 3 corner alignment squares to change, and change it, either a white square to black, or a black square to white. Point out that you are changing one of the bits in the message.

6. Using a QR scanner, scan the QR code. Does it still scan to give the same message?

7. Repeat steps 4 and 5 until the QR code does not scan. Students can do this carefully by changing one square at a time, and counting how many they have changed at the point it stops scanning.

8. Notice what happens when the QR codes does not scan and have a discussion on why the scanner behaved as it did.
This QR code still works.
You haven’t broken the QR code yet.
“Sometimes it is the people no one imagines anything of who do the things that no one can imagine.”

Alan Turing