

Concept

Digital convergence is simplifying life with the ongoing transition from the physical to the digital. At Mastercard, digital innovations have progressed from cards to biometric payment authentication to... what's next?

Help students understand that:

- A technology is any application of knowledge toward a practical purpose.
- Technologies are constantly innovated.
- Digital convergence allows one device to be used for many purposes.
- The digital language is binary code.
- Biometrics is the use of unique physical characteristics to authenticate a user.

Step-By-Step Instructions

Page 1 – Digital Convergence

Teacher: *To access this G4T activity, we used **technology**. But what is technology?*

Have students share responses.

Teacher: *Take a look at the photos and circle the things that are examples of technology.*

Give students a moment to circle and discuss.

Teacher: *Actually they are all technology.*

Have one student read the definition of Technology aloud.

Teacher: *And technology is always changing.*

Direct student's attention to the chart at the bottom of the page. Instruct them to order the items from least technologically advanced to most technologically advanced. Point out that they will need to repeat one of the items in each series.

Page 2 – Digital Convergence

Review the correct order.

Teacher: *These changes came about through the process of **Innovation**.*

Have one student read the definition of Innovation aloud.

Teacher: *But why does the smart phone appear in all three series?*

Elicit student comment.

Teacher: *Innovations make it possible for many functions to **converge**, or come together, in one device. We call this **Digital Convergence**. What else can you do with a smart phone?*

Have students respond in the box and discuss.

Page 3 – Binary Code

Teacher: *But how can one device do so many things?*

Ask students to comment on the image in the right column. Then have them take turns reading through the explanation of **binary code**.

Teacher: *Binary code is a digital language.*

Point out the activity at the bottom of the page. Give students time to convert their names into binary code.

Page 4 - Biometrics

Teacher: *But how can this help us safely make digital payments? It's important that only you can do that.*

Have one student read the definition of **authenticate** aloud and discuss.

Teacher: *What about you is unique?*

Have students respond and share. Then have them take turns reading through the definition and explanation of **biometrics**.

Discuss the digital technologies that students predict for the future.

Teacher: *Congratulations! You are now a G4T Design Engineer!*