Grade 7 Computing

Unit 9 · You and Your Screen

ANSWER KEY · FOR TEACHERS

Full marks 32

Give the marks for the points in the marking scheme; an answer in other words that says the same is right.

1 Key words

1. attention economy
2. infinite scroll
3. variable reward
4. recommendation system
5. metadata
6. filter bubble
7. digital footprint
8. upstander

Each carries 0.5 mark. **K · 4**

2 Label the diagram

1. You watch
2. It records
3. It guesses
4. It picks

Each carries 0.5 mark. **K · 2**

3 Multiple choice

i. **b.** Because they earn money from ads, and the longer you stay, the more ads you see **U · 1**

Ads pay for most free apps, and every extra minute is more ads shown. That is why so much design effort goes into keeping you there. (Staying longer does the battery no good at all.)

ii. **c.** autoplay: carrying on is what happens if you do nothing **K · 1**

Autoplay removes the moment where you would decide whether to watch another. A variable reward is a reward at unpredictable times; a streak counts days in a row; a notification is a message that calls you back.

iii. **c.** It works worse for some groups of people than for others, through no fault of their own. **U · 1**

Every algorithm makes some mistakes. It is unfair when its mistakes, or its costs, fall more on some people than on others: names it doesn't know, villages its map doesn't know, students from schools with poor results in the past.

iv. **c.** You and your classmates test the same app on ten trips in the village and ten in town, and write down how often its route was wrong. **A · 1**

A test you can repeat, with numbers written down, is evidence. An advertisement is a company praising itself, one person's dislike is a feeling, and likes measure how popular a video is, not whether it is true.

v. **c.** Don't react; message the classmate privately, report the post and tell a teacher. **A · 1**

An upstander does something that helps the person being hurt: no laughing, no forwarding, a kind private message, a report and an adult who can stop it. Leaving quietly protects you but doesn't help them.

Science Playground, Katunje, Bhaktapur
Book a class visit: https://science-playground.com/booking

4 True or false

U · 3

i. ✓ **True**
ii. ✗ **False:** It learns most from what you do: what you watch to the end, skip, replay, like and share.
iii. ✓ **True**
iv. ✗ **False:** The American Academy of Ophthalmology doesn't recommend them; tired eyes come from staring without blinking and without breaks.
v. ✓ **True**
vi. ✗ **False:** It removes only your copy; other people's saved copies, screenshots and forwards stay.

Each carries 0.5 mark.

5 Calculations

a. A · 3

ANSWER

In a year: 45 × 365 = **16,425 minutes.**
In hours: 16,425 ÷ 60 = **273.75 hours**, about 274 hours.
In days: 273.75 ÷ 24 ≈ 11.4, so **11 whole days** (about 11 and a half), day and night.

MARKING SCHEME

✓ 45 × 365 = 16,425 minutes.
✓ 16,425 ÷ 60 = 273.75 hours (about 274).
✓ 273.75 ÷ 24 ≈ 11.4, so 11 whole days.

b. A · 3

ANSWER

Asleep by 5:45 am − 8 hours = **9:45 pm.**
Falling asleep takes 15 minutes, so in bed by **9:30 pm.**
Screens off at least an hour before bedtime: by **8:30 pm.**

MARKING SCHEME

✓ Asleep by 9:45 pm (5:45 am − 8 hours).
✓ In bed by 9:30 pm.
✓ Screens off by 8:30 pm, an hour before bedtime.

6 Short answers

a. U · 3

MARKING SCHEME

✓ A person sees mostly things that match what they already watch or believe, and little else, because the feed keeps showing more of what held them.
✓ One way, such as: use Not interested on videos you don't want more of (or reset the feed).
✓ A second way, such as: search on purpose and follow people who teach you something; check what the feed shows; leave the feed for a search, a book or a website you choose.

b. U · 3

MARKING SCHEME

✓ The date and time, the phone used, and often the exact place from the GPS.
✓ A photo taken at home or at school, sent with its metadata (as a file), can tell a stranger where you live or where to find you.
✓ Turn off saving the location in the camera's settings (or check a photo's details before sending it).

7 Long answer

ANSWER

Gains: the app company (people watch longer, so it shows more ads) and its advertisers; users on fast, unlimited Wi-Fi get smooth videos at no extra cost.
Pays: users on small mobile data packs, common in Nepal, whose data goes on videos they never chose to watch (high quality can use a gigabyte in well under an hour);

Science Playground, Katunje, Bhaktapur
Book a class visit: https://science-playground.com/booking

people with weak signals, whose videos stall; anyone who loses time or sleep because there is no moment to stop.

A · 4

A fairer design: autoplay off on mobile data, or low quality until the user taps; a clear switch for autoplay and quality, asked about when a new user joins; a data-saving mode on by default where data is expensive. The decision isn't neutral: designers should look at who it costs, not only at who it earns for.

MARKING SCHEME

- ✓ Gains: the app company (people watch longer, so more ads) and its advertisers; users on fast, unlimited Wi-Fi get smooth videos.
- ✓ Pays: users on small mobile data packs, whose data goes on videos they never chose (and people with weak signals).
- ✓ Pays: anyone who loses time or sleep because there is no moment to stop.
- ✓ A fairer design, such as autoplay off on mobile data, low quality until the user taps, or a clear switch asked about when a user joins.

8 Think

ANSWER

HA · 2

Only partly. Your friend chooses whether to watch each video, to the end or not. But the app chooses which video comes next, from what it has learned about them and from the goal its designers chose. Your friend never chose most of the videos put in front of them; they chose only how to react to them. With a search or a list of subscriptions, they would choose much more.

MARKING SCHEME

- ✓ Partly: the friend chooses how to react to each video (watch, skip, like).
- ✓ But the app's recommendation system chooses which video comes next, from what it learned and the designers' goal.

9 Activity: Three days of screen time

(not marked)

WHAT STUDENTS SHOULD FIND

Most students find that one or two apps take most of their time, mostly in the evening, and that the screen-time page shows more than they guessed. Many find their sleep is shorter than the 9 to 12 hours (ages 6 to 12) or 8 to 10 hours (13 to 18) children's doctors advise. A change that uses a setting, such as notifications off or a daily limit, lasts better than willpower alone.

Marks by level	Knowledge	Understanding	Application	Higher ability	Total
Marks	7	11	12	2	32

Science Playground, Katunje, Bhaktapur
Book a class visit: https://science-playground.com/booking