Simple ways of incorporating digital technologies into your teaching

- Notes App on iPhone as an alternative to field notebooks. Other apps enable voice or video recordings.
    - Some apps (e.g. GeoExplore) allow the user to take a photo and record some data (i.e. sediment log), and input a picture of their sketch to keep everything together and be a bit more interactive.
    - Can be useful as more varied assessments e.g. the assessment activity is not about the notes themselves but what they have been able to do based upon their notes.
    - Prescriptive approaches to field notebooks, i.e. you need to fill it in in this way, do not work for all students. It can exclude some students. Having digital alternatives/other options enables students to engage in the field in a way that is best for them.
    - Voice recorders or dictaphones are one approach for digital field notes. These approaches are good for students with short-term memory, severe dyslexia, etc.
    - Some apps don't need to use data in the field, allowing for upload once students are back on campus and using edurom.
- Using webforms (e.g. Google) allow students to work through them instead of relying on paper notes or logging data sets.
- Producing graphs (e.g. Excel app) in the field during data collection can enable students to see their results emerging in real-time. Provides the opportunity to discuss and interpret the data whilst in the field.
- Using headsets, earpiece or speaker set up (with microphone muffler to avoid wind noises) to record or broadcast speech in the field ensures students can hear. It's good for students who don't want to gather round with lots of other students (e.g. autistic) or hearing impairments.
    - Can embed .wav files into virtual tours or ArcGIS StoryMaps.
- Print out photographs (and/or contour maps) of the field trip route(s).
    - Use these as a starting point to discuss any accessibility issues and/or concerns students might have. Simply indicating sections that may be slippery, uneven, or steep can alienate worries, ensure engagement, and/or alert you to the fact that alternative provision is needed.
- Using digital (or analogue) photographs of the field site(s) during or post-trip can allow students to annotate them as a way of recording observations, or to consolidate learning/apply what they have learnt during the trip.

- Use high quality digital photographs/images in any virtual setting to allow students with visual impairments to zoom into photos, i.e. for plant ID, or alternatively providing a hand lens for magnification.
- Virtual fieldtrips and/or pre-fieldtrips can help alleviate anxiety, and help with familiarisation of the study are and tricky terminology. If virtual fieldtrips are interactive/immersive they can be a viable alternative for those who cannot attend, but need to carefully design the research element, e.g. students could undertake a species ID or record geomorphological features but the task needs to link up with data collection.
- Short videos demonstrating a sampling strategy or field technique available pre-field trip (or lab-based activity) can build confidence/familiarity for students.
- Quizzes or interactive participation, such as Kahoot, Mentimeter, Padlet or escape room PowerPoints, can engage students with digital learning to build confidence/check understanding before a field trip.
- The OU Open Science Laboratory provides access to several exercises that students can work through (e.g. geology, soils, sediments, virtual microscopes).
- eSlide share from Newcastle University gives access to five pollen and foram exercises, with microscope images of reference collections.
- Taking 360 videos or photographs can capture some of the sense (feel) of the field day to create a more authentic field guide/resource, which you can host in Roundme.com or ThingLink.
- Where good mobile/4G coverage exists, using FaceTime or Teams can allow students and staff to communicate with those participants unable to be physically in the field.
- Undertake remote sensing activities (ArcGIS) before going into the field, such as engaging with digital surface models (EA, Lle) whereby students can undertake terrain analysis and extract data (elevation, or valley profile).
  - Use Google Earth or Google Maps for primer activities or data collection/recording. Google Earth is particular good for geomorphological data observations, i.e. orientation, different perspective, large scale patterns, but it also enables students to annotate a Google Earth project i.e. create a virtual map for either a virtual or in-person field trip.
  - Street View (not just urban areas) helps students become familiar with features at the location/in the field. It's possible to undertake field sketching, annotate, or record observations.
- Many data sources can be freely downloaded e.g. river flow, foot fall, air pollution, etc. that can then be integrated into a virtual or in-person trip/activity.

- Microsoft products (Office 365) now come with inbuilt accessibility tools to help ensure any resources produced are accessible and inclusive.