1. Reflecting on using TECHNOLOGY AND CREATIVE MUSIC EDUCATION (coded PINK in the 2014 report)

	Pedagogical Issues/Learning Issues (numbers in the left hand column correspond to the 2014 report)	*Question*	*Suggestions/Discussion/recommendation*
1	Pupils need time to practice and learn how to use new technological tools. Sometimes this is difficult for pupils to understand.	How can pupils learn to use new technological tools effectively and creatively within the compositional process?	A way of addressing this issue is to relate it to pupil's learning of traditional instruments. Simple instruments, including 'speaker twitching' removes necessity for advanced technique.
2	Technology is often used as a "bolt on" resource, either for those who aren't fluent on a "conventional" instrument, or as a notation tool (including a tool that produces notation of a performance).	How can technology become a normal part of learning music from an early stage?	Encourage the pupils to engage in discussion about the use of technology within the context of a live performance. Ask questions such as 'How can you tell if a laptop is being played with expression?' 'How important is the visual element of music performance to the audience?'. Also encourage them to be inventive and experimental in the live performance of their own music pieces using technology.
5	When pupils use technological tools in their composing, it can be difficult to find a way to notate them.	How can Computer/ technological tool instructions be notated?	Notation does not just need to be Western MS. Collect and share with pupils different kinds of music notation. This allows pupils to explore the whole idea of what music notation is for and helps them to think about what might be an appropriate notation for their music, and for presenting it in a way that it could be revisited at a later date, or so that another person could perform it. This can be part of early learning in music ICT.
4	There is a vast musical tradition of electroacoustic and electronic music that pupils (and their teachers) are not aware of, and which can enrich and inform composing activities.	How can pupils develop their understanding of the use of technology in composition for their own composing and within a broader context of music traditions?	Contextualise pupil's work within the broader electroacoustic and live electronics music tradition. Music by Nic Collins, Morton Subotnick, Stockhausen, Pauline Oliveros could be used. This music could also be used to encourage discussion of 'what is music?'. Broaden the listening base of KS3 music by including challenging pieces.

5	Greater complexity in technological tools is not necessarily a good thing or something which produces technological or educational progression.	How can technological tools be used appropriately to ensure progression?	Make students aware of and engage them in a discussion concerning how the use of technology both limits and extends our ideas. The challenges that technology brings to the process of musical composition are an integral component of the creative process. Developing students' appreciation of these issues is important. Use technology alongside acoustic classroom instruments to compose.
7	Whatever technologies are used in the teaching of musical composition, it is important to recognise that they all have particular affordances and limitations	How can pupils develop an understanding of which technologies are appropriate to use and when?	Teach composing using suitable musical sound sources, the affordances of ICT can greatly add to, say, percussion. Teach lessons where the same thing is played on different instruments. What effects does this have?
12	When asked to compose a piece of music, pupils may try to imitate and draw on genres of music that feature a strong beat, even if the technology being used does not easily support such a framework.	How can pupils' affinity to beat or metrical musical frameworks be ameliorated and re-conceptualised within compositional projects?	First pupils need to be introduced to music like this, then make it. Possible simple way is via film music?
13	Many professional-level technological tools are expensive and complex to learn how to use. Their complexity can inhibit pupils' musical intentions.	What technological tools could pupils use to maximize their musical learning?	Explore homemade or open-source technologies. These are often of equal pedagogic and musical value, and offer similar opportunities to expensive, professional tools. Along with lessons on 'what is music', 'what is a musical instrument'? can also be asked.
14 & 2 & 17	Technology is often used as a "bolt on" resource, either for those who aren't fluent on a "conventional" instrument, or as a notation tool (including a tool that produces notation of a performance).	How can the use of technological tools be integrated into the musical classroom?	Link together conventional instruments with digital technologies whenever possible. This allows for students to make connections between what they know and what they are being encouraged to know. Plan for learning using a range of resources available in school. Be creative in the choice of digital technologies and make them central to the activities that are undertaken with them. Musical teaching and learning will depend on what is available, but can be used by all pupils, at all stages.

| 26 | Musical creation is often perceived as an instantaneous act and not a process. This can lead to a lack of confidence when initial ideas are not fully-formed and performance-ready. | How can we support pupils in developing their understanding of composing as a process? | Composing is complex - it needs teaching as a series of stages. Teaching it in a series of stages helps break down the composing process, making it easier for pupils to conceptualise.

Plan lessons on: Idea generation; musical organisation; assembling piece; practising in sections; how to structure a piece of music.

Composing is a slow process and it is important to learn how to stay with the process; to engage pupils and encourage them to work through problems, take risks, experiment and explore. |
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| 34 | As music is a sound based art form, unless written down, it is difficult for pupils to revisit, evaluate and refine from class to class. | What is the role of recording in supporting evaluation? | Use technology such as iPads and sound recorders to record and share work-in-progress, and to revisit old and new drafts. It also means that a wide range of exemplars at different stages of the process can be saved for future use.

Record - and playback - what pupils produce regularly, not only at the end of a project. |
| 36 | Composing is a skill, pupils improve the more they do it. | How can technology be used to encourage pupils to compose regularly. | Composing is a process that needs daily practice. Encourage pupils to compose something every day even if very short.

Encourage sonic notebooks which could take the form of a series of recordings or sound files. |
| 38 | Recording used to help pupils with the process of composing | Formative use of recordings | |
| 49 | At the beginning of the composing process, pupils' ideas are often fragile. They can be very self-critical of their ideas which can lead to them being easily discarded by pupils. | Is it useful to, and in what ways can we depersonalize evaluation at the start of the composing process and therefore encourage pupils to | Valuing pupil contributions is a crucial part of evaluation especially at the beginning of the composing process. Sometimes using an external generative system, for example magic squares to generate melodies, removes the idea from the personal, and, therefore, if the results are not immediately felt to be useful, the problem can be located with the system rather than the individual.

How can sounds be generated? Dice? Mozart game? Letters from poems? 'Taking a note for a walk'. Try |

		stick with their initial ideas? Does using technology have a role here?	different starting points with different lessons. Also try (using technology) 'speaker twitching', making drones or repeated patterns using a microphone and an effects box.