

Exploring circle theorems with TI-Nspire™ Navigator™

Maria Wærn – Åva Gymnasium, Täby, Sweden

Case Study



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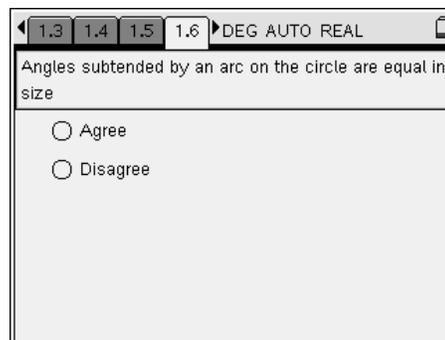
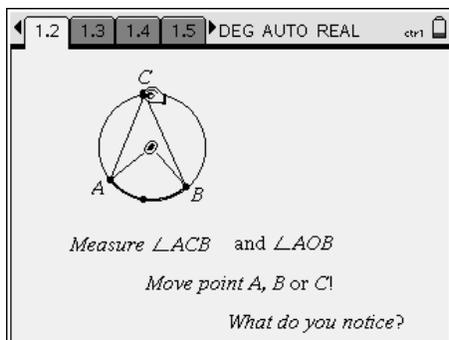
Teacher	Maria Wærn
Location	Ava Gymnasium, Täby, Sweden
Class	16-17 year old students on a Preparatory year for the International Baccalaureate programme
Technology	TI-Nspire™ Navigator™

Setting

The students have been using their own TI-Nspire™ handhelds since September 2008 and I started to use TI-Nspire™ Navigator™ with them in May 2009. I used the File transfer and Screen capture features during the lesson. The TI-Nspire™ file also included some question that I was able to analyse using Class Analysis after the lesson.

The lesson

I transferred a pre-constructed file to the students TI-Nspire™ handhelds which included a number of dynamic constructions concerning circles which asked the students to measure angles and drag points in order to make their own conjectures about what was happening. The students worked individually and there was not much discussion between them.



During the lesson, I observed the Screen Capture view on my computer and I was also able to observe the different pace with which the students were working.

Students' mathematical learning

The activity was excellent for the students to find out that angles subtending the same arc are equal or that the angle subtending the arc at the centre is twice the angle subtending the arc. The use of the Screen Capture view and being able to collect the students TI-Nspire™ files enabled me to get a very good idea of the students' learning during the lesson. There were a few students who would have benefited from more time on the exploratory tasks – they were less confident to answer the questions - whereas others were able to progress very quickly. Most of the students were able to generate the required theorems which meant we could move onto justifying and proving them in the subsequent lessons.

Conclusion

The lesson was very quiet and I felt that, with hindsight, it would have been better to have asked the students to work in small groups and use the Screen Capture view to have a class discussion and enable the less confident students to learn from their peers. Although the Class analysis did tell me who did or did not get each of the questions correct, I had missed the opportunity to discuss these questions during the lesson, which may have benefited more students.

One day after this lesson I was tutoring some students in this class and when we did one of these kind of problems then one student (who really find maths difficult) claimed that “the angle at the centre was twice as large as the other angle subtended the same arc” with such confidence she does not normally have when discussing maths. When I asked her why she looked surprised at me and said, “but Maria, this is what we did in class yesterday, don't you remember?” I was truly amazed and immensely happy to hear that she didn't only learn some Maths from this activity, she also gain some self-confidence in Maths which isn't that easy to support in a classical teaching style.