

# Exploring quadratic functions with TI- Nspire™ Navigator™

Teacher – Epi van Winsen, Scholengemeenschap Sophianum, Netherlands

Case Study



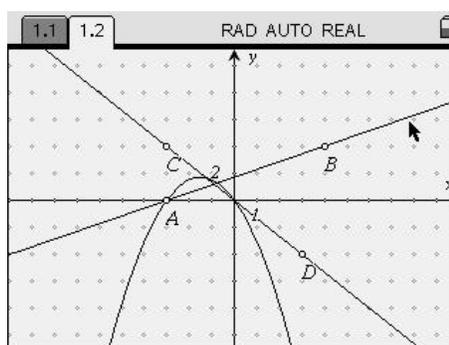
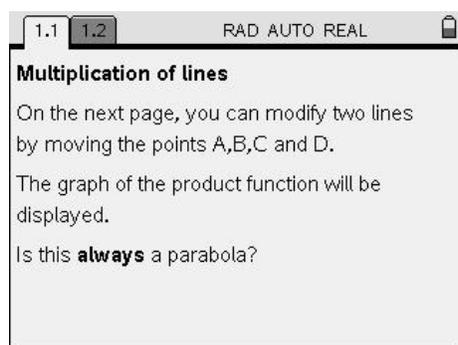
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# Supporting statistical experiments with TI-Nspire™ Navigator™

Teacher	Epi van Winsen
Location	Scholengemeenschap Sophianum, Gulpen, Netherlands
Course	5VWO Math B
Technology	TI-Nspire™ Navigator™

**Setting:** Scholengemeenschap Sophianum is a state secondary school in the Netherlands. I have been using TI-Nspire™ handhelds and software with my students since September 2007 and TI-Nspire™ Navigator™ since May 2009. In this lesson I used the File transfer, Screen Capture and Live Presenter features.

**The lesson:** I wanted my students to explore what happened when they multiplied two linear functions to find out what types of parabolas were possible (downward opening, upward opening, how many zeros) and to look for special cases, for example, horizontal lines. I began by using TI-Nspire™ Navigator™ to send the students a file I had pre-constructed in which they could experiment by dragging the individual functions to change the appearance of the lines and the resulting parabola.



The students were all able to make progress with the task and, after some exploration time, I used the Screen capture to show the 14 screens with different situations which prompted a discussion about all of the different possibilities that the students had found. I asked questions such as, 'Which properties of the individual lines will result in which type of parabolas' and I made selected students the Live Presenter to let them explain their theories the class.

### **Students' mathematical learning**

In this lesson my students had needed to think mathematically by considering the properties of special cases and counter examples. These were made more obvious to the whole class due to the number of different screens that could be displayed at one time with Screen Capture. Using TI-Nspire™ Navigator™ in this lesson enabled my students to see each others' work and this prompted a much wider discussion in the classroom than would normally happen when the students only work with the student seated next to them.

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### **Conclusion**

The TI-Nspire™ Navigator™ classroom system had given me more tools to support my classroom management. Seeing all of the TI-Nspire™ screens in one view made it easier for me to address individual students about their work. Screen Capture informed me about which students to make the Live Presenter as I already an idea about what they could contribute. In this activity I needed every student to see many different screens to enable them to come to generalisations and without this, if they have only seen their own TI-Nspire screen they would lack a global view of the mathematical topic.