Some Interactive Geometry Software

- Geometer's Sketchpad – http://www.dynamicgeometry.com
- Cabri – http://www.cabri.com
- GeoGebra – http://www.geogebra.org/cms
- Wingeom – http://math.exeter.edu/rparris/wingeom.html

Activity 1 – Enacting a transformation

Files: translate.ggb, rotate.ggb, reflect.ggb, glide.ggb

- Translations
    - Can you describe how to enact a translation?
    - What happens when you move or alter the object to be translated?
    - What happens when you move the translation vector?
    - What happens when you alter the translation vector?
    - Can you use coordinates?
- Rotations
    - Can you describe how to enact a rotation?
    - What happens when you alter or move the object to be rotated?
    - What happens when you move the center of rotation?
    - What happens when you move the rotation angle?
    - What happens when you alter the rotation angle?
    - Can you use coordinates?
- Reflections
    - Can you describe how to enact a reflection?
    - What happens when you alter or move the object to be reflected?
    - What happens when you move the reflection line?
    - What happens when you alter the reflection line?
    - Can you use coordinates?
- Glide Reflections
    - Can you describe how to enact a glide reflection?
    - What happens when you alter or move the object to be glide reflected?
    - What happens when you move the reflection line?
    - What happens when you alter the reflection line?
    - What happens when you move the translation vector?
    - What happens when you alter the translation vector?
    - Can you use coordinates?

Activity 2 – Identifying a transformation from its action on a (static) shape

Files: transform2a.ggb, transform2b.ggb, transform2c.ggb, transform2d.ggb

- Translations
    - How can you identify a translation?
    - How can you recover the translation vector?
- Rotations
    - How can you identify a rotation?
    - How can you recover the center of rotation?
    - How can you recover the rotation angle?
- Reflections
    - How can you identify a reflection?
    - How can you recover the reflection line?
- Glide Reflections
    - How can you identify a glide reflection?
    - How can you recover the reflection line?
    - How can you recover the translation vector?

Activity 3 – Identifying a transformation from its action on a single movable point

Files: transform3a.ggb, transform3b.ggb, transform3c.ggb, transform3d.ggb

- Translations
    - How can you identify a translation?
    - How can you recover the translation vector?
- Rotations
    - How can you identify a rotation?
    - How can you recover the center of rotation?
    - How can you recover the rotation angle?
- Reflections
    - How can you identify a reflection?
    - How can you recover the reflection line?
- Glide Reflections
    - How can you identify a glide reflection?
    - How can you recover the reflection line?
    - How can you recover the translation vector?

Reflections(!) on teaching and learning

- What mathematical concepts are developed in each of the activities?
- Which activities are more helpful to develop and understand which concepts?
- Is the chosen sequencing of the activities effective, or would you recommend a different ordering?
- In what ways in these activities can interactive geometry software assist in gaining understanding that would be difficult to do without the software?
- In what ways in these activities is the presence or absence of interactive geometry software not so important in gaining understanding?

Further Activities

What activities and interactive geometry sketches would assist in developing the understanding of composing two transformations?

Starting examples:

- Composing two translations
- Composing two reflections
- Composing two rotations