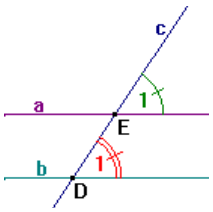
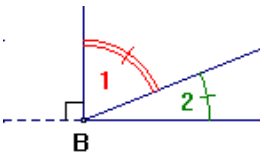
Géométrie des Transformations

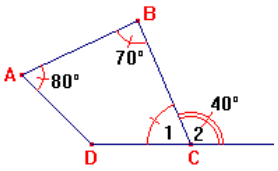
Plan des activités de TROISIÈME ANNÉE SECONDAIRE

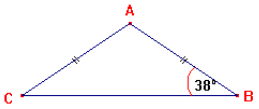
Thème 1 – Angles

- Notion d'angle (rappel)

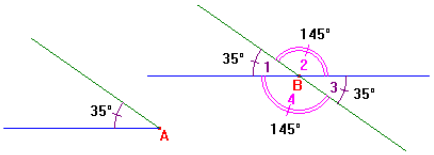


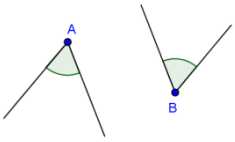




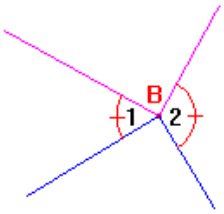


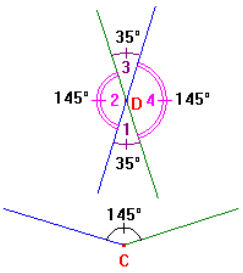
- Angles à côtés parallèles



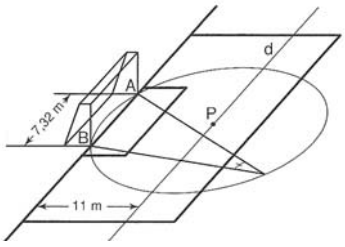


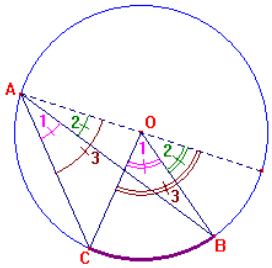
- Angles à côtés perpendiculaires

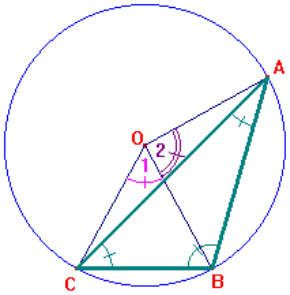


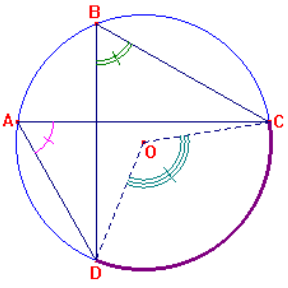


- Angle au centre et angle inscrit

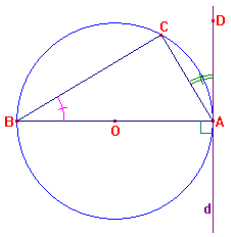


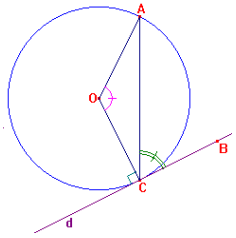




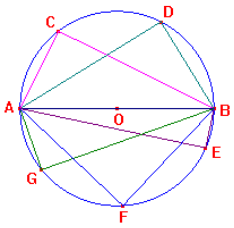


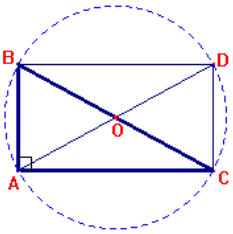
- Angle tangentiel





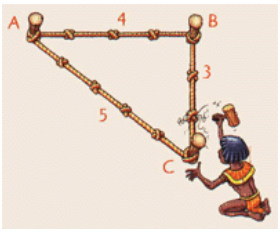
- Triangle rectangle et cercle

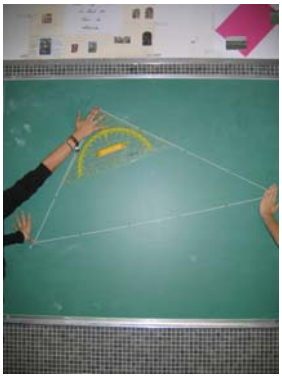


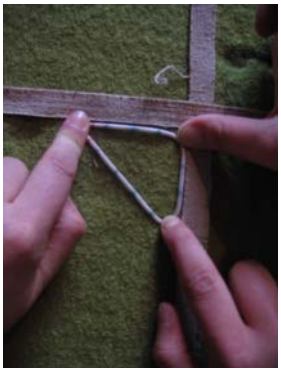


Thème 2 – Pythagore

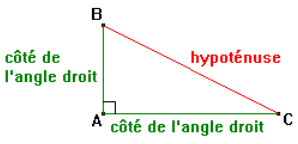
- Énigmes de motivation

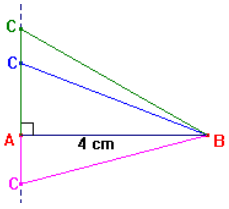


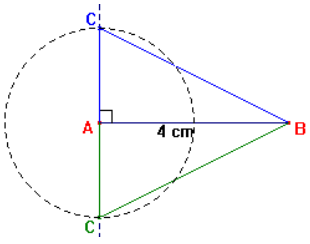




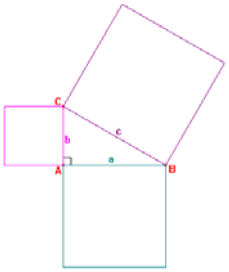
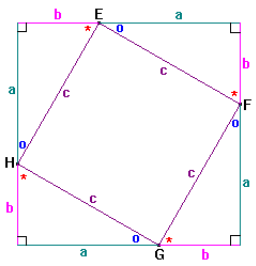
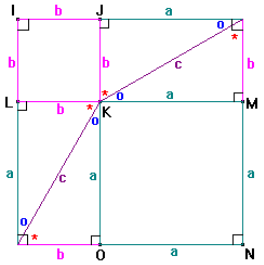
- Détermination univoque d'un triangle rectangle

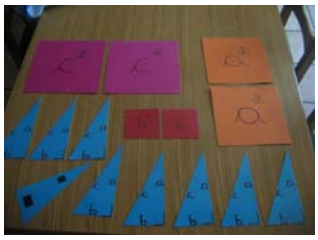
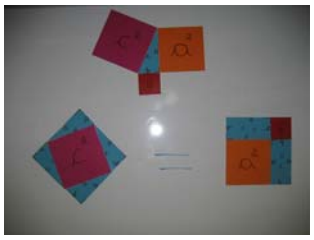
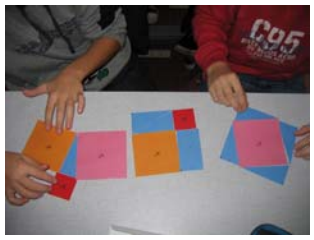
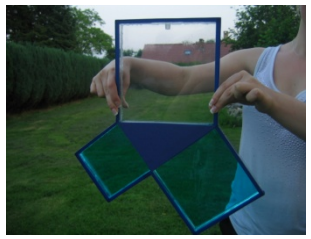




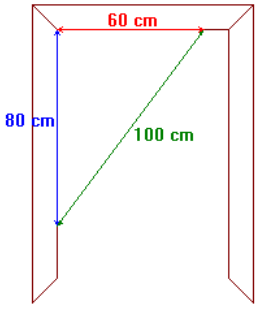


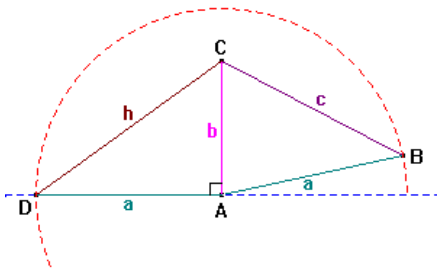
- Théorème de Pythagore

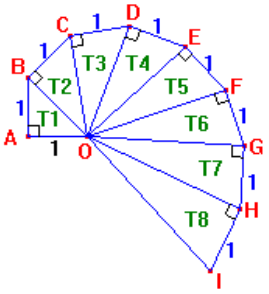





- Triplets pythagoriciens
- Réciproque du théorème de Pythagore

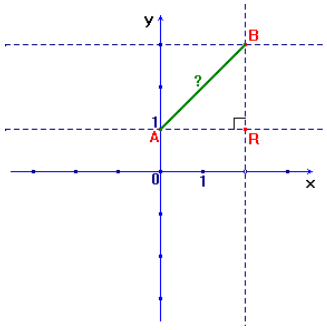


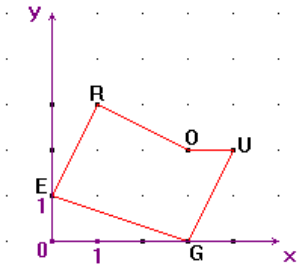


- Triangle non rectangle et contraposée
- Le limaçon de Pythagore

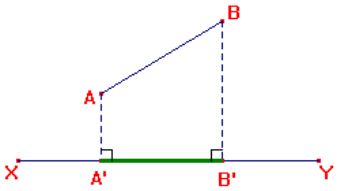


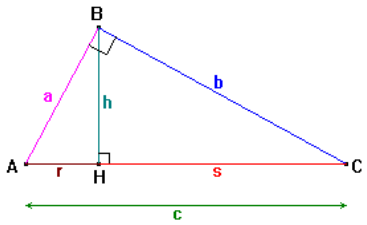
- Distance entre deux points dans un repère orthonormé

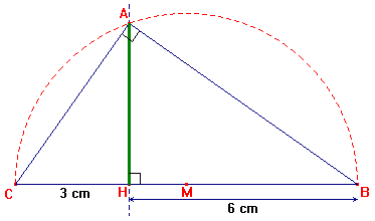




- Relations métriques dans les triangles rectangles





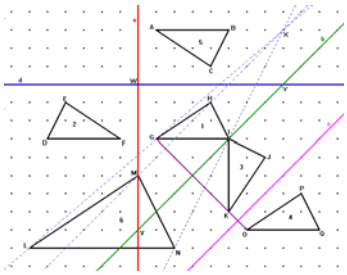


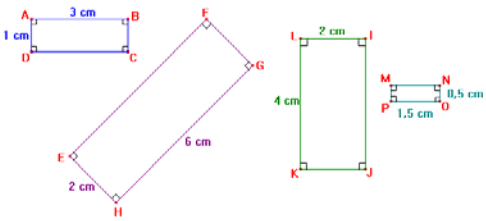
- Applications non usuelles sur le théorème de Pythagore et sa réciproque
  (Lunules d'Hippocrate, figures isopérimétriques, figures isosuperficielles, problème des frites *light*, prolongement du théorème de Pythagore)

Thème 3 – Figures isométriques et semblables

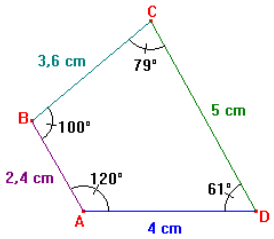
- Rappel à propos des transformations du plan

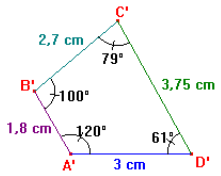
- Figures semblables



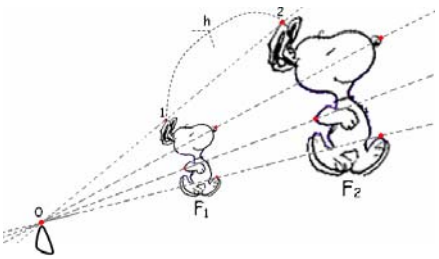


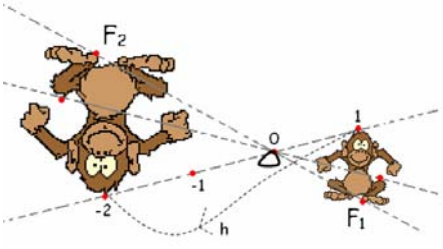
- Rapport de similitude



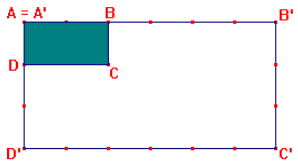


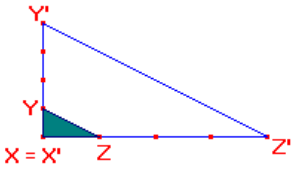
- Notion d'homothétie

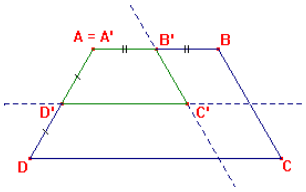




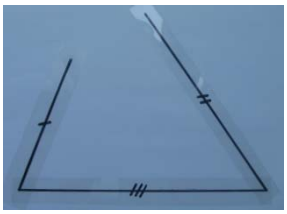
- Périmètres et aires de figures semblables

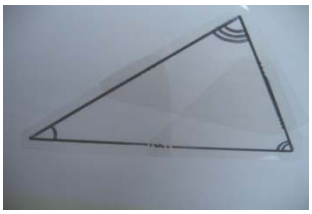


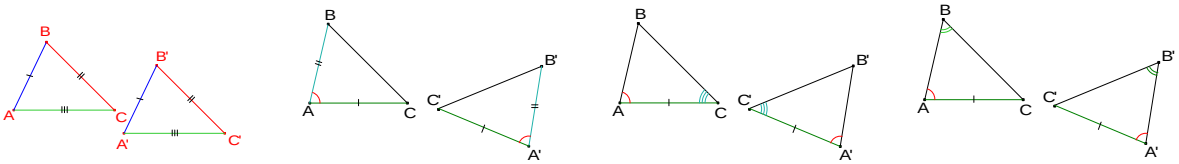




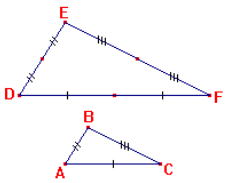
- Cas d'isométrie des triangles

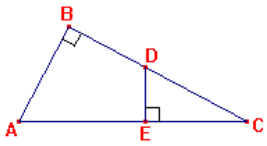


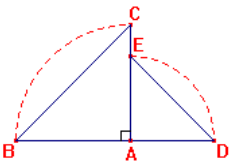




- Cas de similitude des triangles

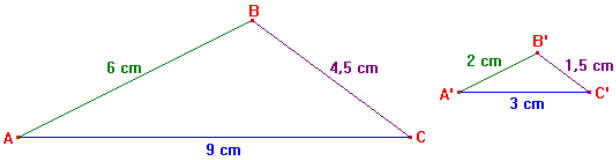




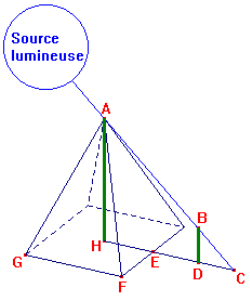


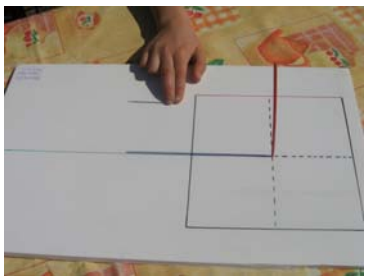
Thème 4 – Thalès

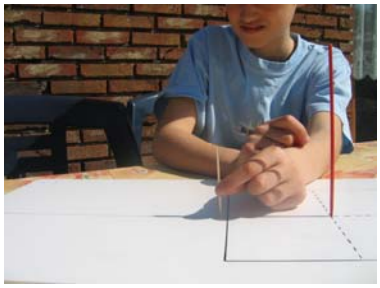
- Proportionnalité



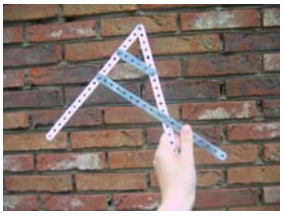
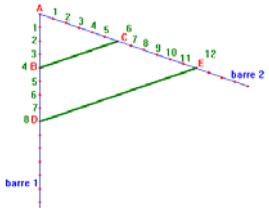
- Découverte du théorème de Thalès

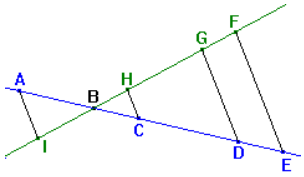


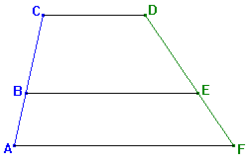


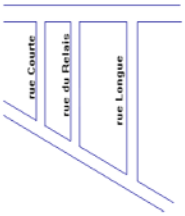


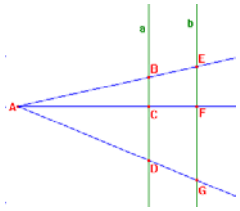
- Enoncé du théorème de Thalès et ses variantes

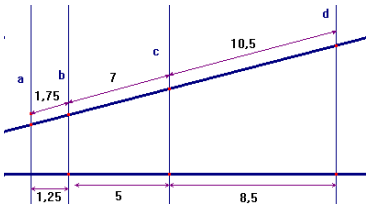


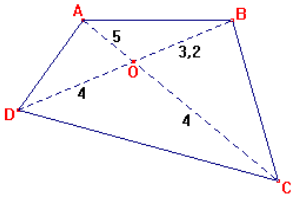




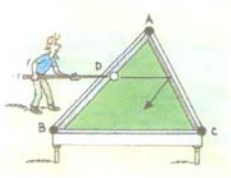


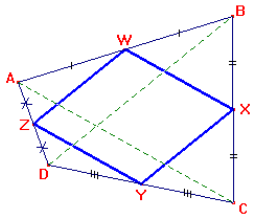
- Réciproque du théorème de Thalès



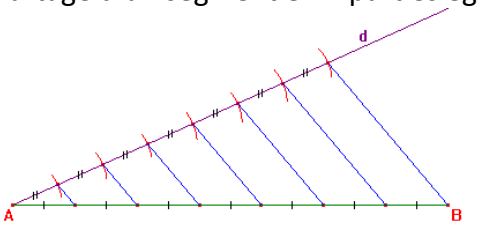


- Théorème des milieux dans un triangle (ou le petit théorème de Thalès)

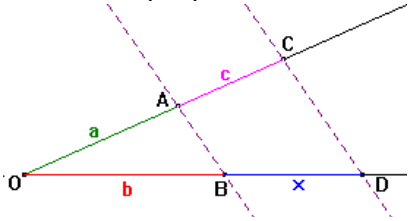




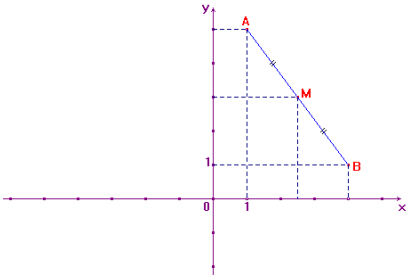
- Partage d'un segment en n parties égales



- Quatrième proportionnelle

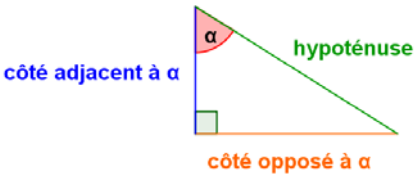


- Coordonnées du milieu d'un segment dans un repère orthonormé du plan

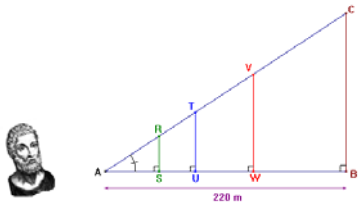


Thème 5 – Trigonométrie

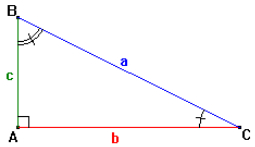
- Introduction sur la trigonométrie
- Terminologie



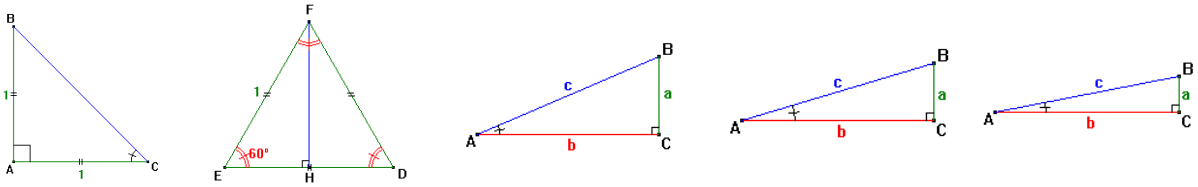
- Découverte des relations trigonométriques



- Utilisation de la calculatrice
- Propriété des nombres trigonométriques de deux angles complémentaires



- Relation entre le sinus, le cosinus et la tangente d'un angle
- Valeurs trigonométriques des angles particuliers



- Relation fondamentale de la trigonométrie
- Applications