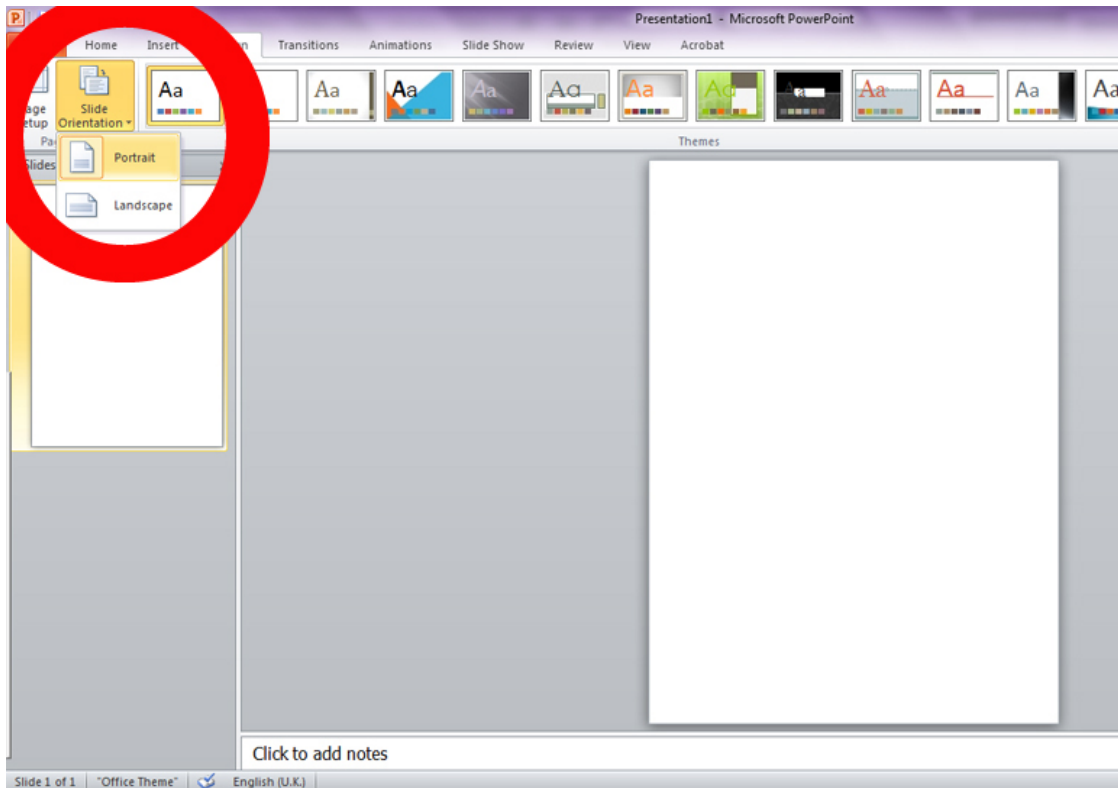


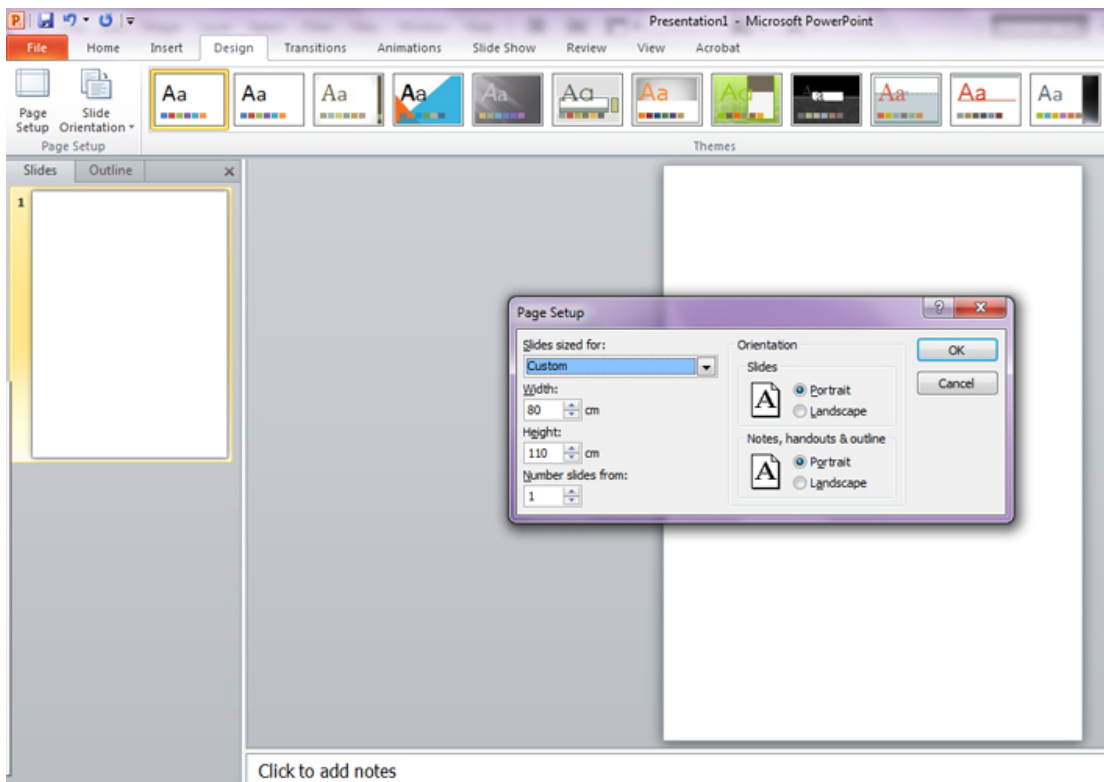
## Athens and Attica in the Early Iron Age and the Archaic Period

Poster presentations should be of paper size **B1: 1000mm (H) X 707mm (W)**.

The easiest way to design a poster presentation is by using Power Point.

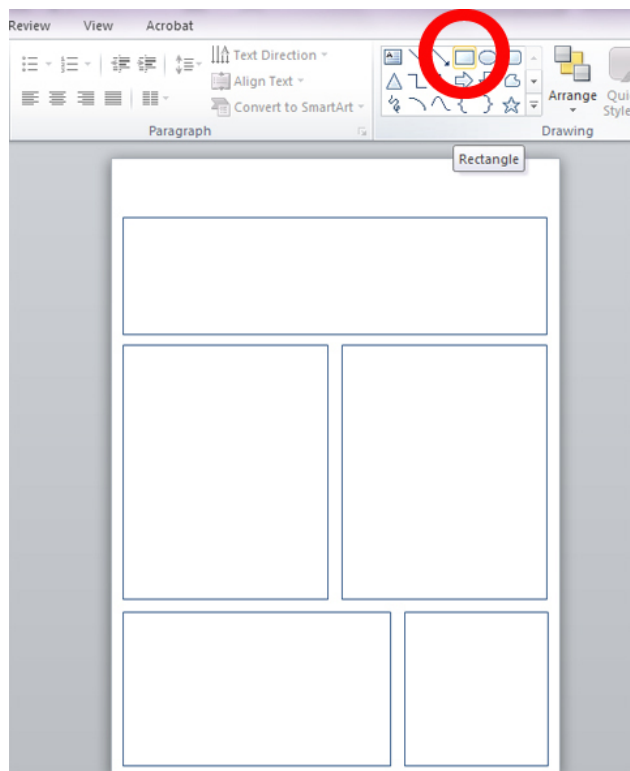


1. In the menu, select **Slide orientation** > **Portrait**.

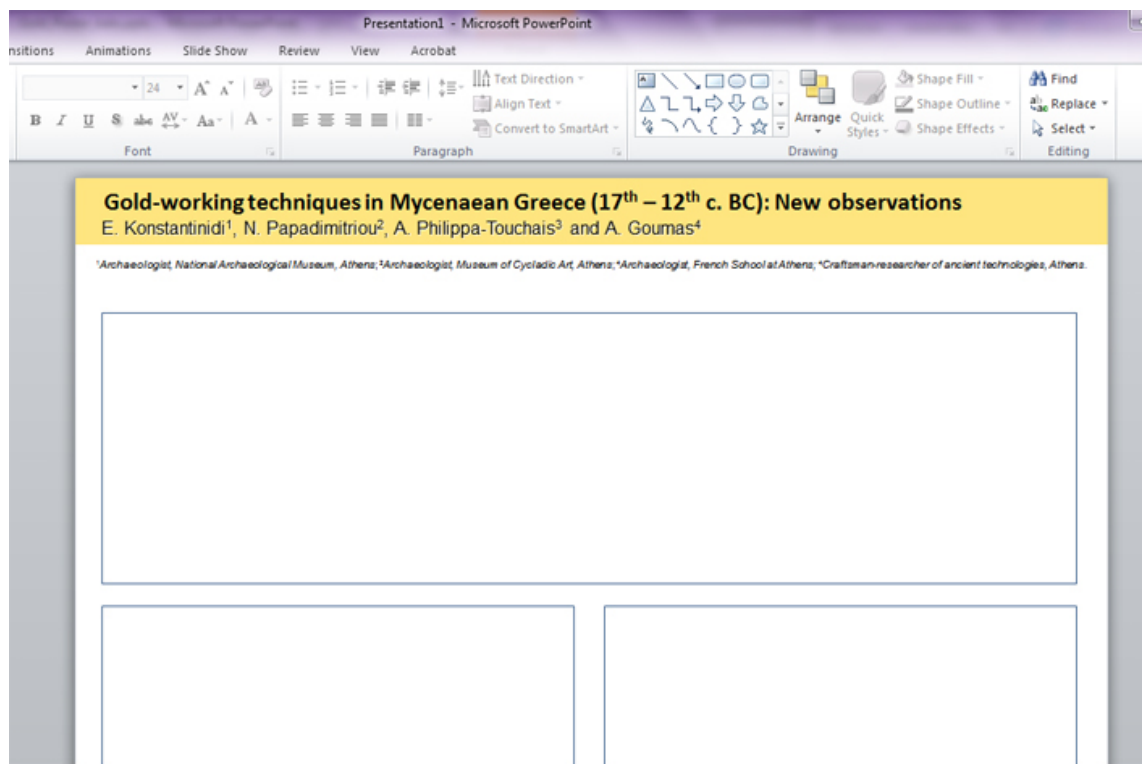


2. In the menu, select **Page setup** and enter manually the following dimensions: **100cm (H) and 70.7cm (W)**

Due to the large size of the poster, if you wish to view the whole surface you will have to zoom out considerably (10%). To work on text or image details, you will have to zoom in the relevant sections.



3. Use linear forms from the Drawing tool to organize the space of your poster.



to add notes

4. Add the title, you name(s) and affiliation(s). Use large fonts in order to be visible from a distance (in this example, the title is in 54pts, names in 40pts, and affiliations in 24pts).

Paragraph Drawing Sty

### Gold-working techniques in Mycenaean Greece (17<sup>th</sup> – 12<sup>th</sup> c. BC): [Some] New observations

E. Kostasidou<sup>1</sup>, N. Papadimitrou<sup>2</sup>, A. Philipp-Toufexas<sup>3</sup> and A. Goumas<sup>4</sup>

**Introduction**

Perhaps the most impressive technique known to the Mycenaean craftsmen is granulation. The technique comes from Mesopotamia where it is already known from the end of the 3<sup>rd</sup> millennium BC. During the Mycenaean period, gold granules reach a total of 10-20 per centimeter and decorate several relief beads and finger rings. One of the most characteristic granulated artifacts is the elaborateround bead.

**Spherical beads with granulated decoration and doisonné inlays** (Fig. 2a, 3b) are confined chronologically to the 15<sup>th</sup>-14<sup>th</sup> c. BC and geographically to the southern Greece and Crete. The distinctive manufacture of these beads is due to the combination almost all the popular techniques of the period: metal forged on the core, granulation, filigree and glass inlays, most of them imported from the East via Crete.

A conical bead from the Deiras cemetery at Argos (Figs. 2 right, 3) is decorated with spiral granulation. Granules were produced through a natural firing process: the gold sheet was cut in minute square pieces of standard size, which were then heated to the melting point until they became spheres (Fig.4). Observation with magnifying loop-glasses on the granulation reveals regular granule shapes and settings, but also overheated surfaces and edges.

In order to keep granules in place, a narrow spiral groove running from the top to the base of the dome was chased, and large quantities of a mixture of copper salts and vegetable or fish glue was placed on it (Fig. 5).

**«Anticlastic» technique**

The magnificent gold triple tassel or curled leaves (Fig. 6a-b) from a chamber tomb (15<sup>th</sup> c. BC) of the Deiras cemetery at Argos, have been made with the «anticlastic» technique: a piece of sheet metal is hammered over a U-shaped clay, stone or wooden mould (Fig. 7). By compressing the edges and stretching the ductile, the surface develops two curves or coils at right angles to each other, concave on the inside and convex on the outside.

The ornament is decorated with fine granulation technique. The spherical granules are well placed in grooved lines, matching the size of the leaf. On top of some granules we observed conical protrusions (Fig. 7, d). The enigmatic existence of the pointed granules could be explained by the method of production (perhaps projection of melted gold on flat surface in water).

The anticlastic technique is probably of Minoan origin and this is best documented on the handles of elegant vases such as the marble flygon from Grave Circle A, Mycenae, dated to the 13<sup>th</sup> cent. BC (Fig. 8). Although there are Late Bronze Age examples of triple tassel leaves on glass or faience from Mycenaean and Dendra, jagged along with the engraving of the motif on a stone mould, from the palatial workshops of Mycenaean, such ornaments of gold are so far unparalleled.

Variability in manufacture and decoration points out that probably several hands, experienced and craftsmen were working together.

**«Gold embroidery»**

The gold wire alloy, in a high gold content, is first a wire to be used for the granulation. The wire is drawn to a diameter of 0.2 mm and then cut into small pieces of 1-2 mm. These pieces are then placed on a surface of 10-20 per centimeter and decorated with granulation. The granules are produced through a natural firing process: the gold sheet was cut in minute square pieces of standard size, which were then heated to the melting point until they became spheres (Fig. 4). Observation with magnifying loop-glasses on the granulation reveals regular granule shapes and settings, but also overheated surfaces and edges.

The edges of the granules are well placed on the remaining pieces of wire and on the surface.

**Filling materials: Emery?**

Emery is a mineral of the silicate group, composed of iron and magnesium silicates. It is a hard mineral, with a Mohs hardness of 8-9. It is used as an abrasive material in various industries, including the production of metal parts and the polishing of gemstones.

**References**

Kostasidou, E., Papadimitrou, N., Philipp-Toufexas, A., Goumas, A. (2015). Gold-working techniques in Mycenaean Greece (17<sup>th</sup> – 12<sup>th</sup> c. BC): [Some] New observations. *Journal of Archaeological Science*, 62, 1-10.

5. Add section titles and texts (in this example, all texts are in 24pts).

Font Paragraph Drawing Styles Editing

### Granulation

Perhaps the most impressive technique known to the Mycenaean craftsmen is granulation. The technique comes from Mesopotamia where it is already known from the end of the 3<sup>rd</sup> millennium BC. During the Mycenaean period, gold granules reach a total of 10-20 per centimeter and decorate several relief beads and finger rings. One of the most characteristic granulated artifacts is the elaborateround bead.

**Spherical beads with granulated decoration and doisonné inlays** (Fig. 2a, 3b) are confined chronologically to the 15<sup>th</sup>-14<sup>th</sup> c. BC and geographically to the southern Greece and Crete. The distinctive manufacture of these beads is due to the combination almost all the popular techniques of the period: metal forged on the core, granulation, filigree and glass inlays, most of them imported from the East via Crete.

A conical bead from the Deiras cemetery at Argos (Figs. 2 right, 3) is decorated with spiral granulation. Granules were produced through a natural firing process: the gold sheet was cut in minute square pieces of standard size, which were then heated to the melting point until they became spheres (Fig.4). Observation with magnifying loop-glasses on the granulation reveals regular granule shapes and settings, but also overheated surfaces and edges.

In order to keep granules in place, a narrow spiral groove running from the top to the base of the dome was chased, and large quantities of a mixture of copper salts and vegetable or fish glue was placed on it (Fig. 5).

**«Anticlastic» technique**

The magnificent gold triple tassel or curled leaves (Fig. 6a-b) from a chamber tomb (15<sup>th</sup> c. BC) of the Deiras cemetery at Argos, have been made with the «anticlastic» technique: a piece of sheet metal is hammered over a U-shaped clay, stone or wooden mould (Fig. 7). By compressing the edges and stretching the ductile, the surface develops two curves or coils at right angles to each other, concave on the inside and convex on the outside.

The ornament is decorated with fine granulation technique. The spherical granules are well placed in grooved lines, matching the size of the leaf. On top of some granules we observed conical protrusions (Fig. 7, d). The enigmatic existence of the pointed granules could be explained by the method of production (perhaps projection of melted gold on flat surface in water).

The anticlastic technique is probably of Minoan origin and this is best documented on the handles of elegant vases such as the marble flygon from Grave Circle A, Mycenae, dated to the 13<sup>th</sup> cent. BC (Fig. 8). Although there are Late Bronze Age examples of triple tassel leaves on glass or faience from Mycenaean and Dendra, jagged along with the engraving of the motif on a stone mould, from the palatial workshops of Mycenaean, such ornaments of gold are so far unparalleled.

Variability in manufacture and decoration points out that probably several hands, experienced and craftsmen were working together.

**«Gold embroidery»**

The gold wire alloy, in a high gold content, is first a wire to be used for the granulation. The wire is drawn to a diameter of 0.2 mm and then cut into small pieces of 1-2 mm. These pieces are then placed on a surface of 10-20 per centimeter and decorated with granulation. The granules are produced through a natural firing process: the gold sheet was cut in minute square pieces of standard size, which were then heated to the melting point until they became spheres (Fig. 4). Observation with magnifying loop-glasses on the granulation reveals regular granule shapes and settings, but also overheated surfaces and edges.

The edges of the granules are well placed on the remaining pieces of wire and on the surface.

**Filling materials: Emery?**

Emery is a mineral of the silicate group, composed of iron and magnesium silicates. It is a hard mineral, with a Mohs hardness of 8-9. It is used as an abrasive material in various industries, including the production of metal parts and the polishing of gemstones.

**References**

Kostasidou, E., Papadimitrou, N., Philipp-Toufexas, A., Goumas, A. (2015). Gold-working techniques in Mycenaean Greece (17<sup>th</sup> – 12<sup>th</sup> c. BC): [Some] New observations. *Journal of Archaeological Science*, 62, 1-10.

Click to add notes

6. Add images and captions (in this example, captions are in 20pts).

Gold-working techniques in Mycenaean Greece (17<sup>th</sup> – 12<sup>th</sup> c. BC): [Same] New observations  
E. Konstantinidi, N. Papadimitriou, A. Philippe-Bouches and A. Gourmes

**Introduction:**  
Gold working has been one of the most sophisticated expressions of Mycenaean (Minoan) luxury arts, including the famous Shell-Gold of Mycenae (17<sup>th</sup> c. BC) as well as various other and lesser-known gold objects. The most striking examples are gold leafing and granulation, which led to the development of gold leafing and granulation. The research has been carried out in the Laboratory of Archaeology, University of Athens, Greece, and the results are published in the journal *Journal of Archaeological Science*.

**Fig. 1.** The Argolis plain with the location of the Mycenaean palace centers.

**Fig. 2.** Shell-gold granulation decoration from the cemeteries of (a) Gournon and (b) Ligeia.

**Fig. 3.** Mycenaean gold leafing technique.

**Fig. 4.** Mycenaean gold leafing technique.

**Granulation**

Perhaps the most impressive technique known in the Mycenaean civilization is granulation. The technique seems to have been used since the end of the 17<sup>th</sup> millennium BC. During the Mycenaean period, gold granules, used in a lot of 18-20 carat metal, were used to decorate various metal objects. One of the most remarkable granulation artifacts is the famous 'shell-gold'.

Granulation is a technique used to create a textured surface on metal objects. It involves the application of small gold particles to a surface, creating a granular effect. This technique is often used to create a textured surface on metal objects, such as jewelry and decorative items.

**Fig. 5.** Granulation technique.

**Fig. 6.** Granulation technique.

**Fig. 7.** Granulation technique.

**Fig. 8.** Granulation technique.

**"Archaeological" technique**

The most important gold-working technique in Mycenaean Greece is the granulation technique. This technique involves the application of small gold particles to a surface, creating a granular effect. This technique is often used to create a textured surface on metal objects, such as jewelry and decorative items.

The granulation technique is a complex process that involves the application of small gold particles to a surface. This technique is often used to create a textured surface on metal objects, such as jewelry and decorative items.

**Fig. 9.** Granulation technique.

**Fig. 10.** Granulation technique.

**Fig. 11.** Granulation technique.

**Fig. 12.** Granulation technique.

**"Gold embroïdy"**

The "gold embroïdy" is a highly rare technique that seems to be a Mycenaean invention. It has been applied on a bronze sword pommel and handles from Mycenae and Dendra in the Argolid (15<sup>th</sup> c. BC), now preserved very fragmentarily. The technique involves the application of gold leafing to a surface, creating a textured effect. This technique is often used to create a textured surface on metal objects, such as jewelry and decorative items.

This technique, named "gold embroïdy" by the Greek excavator of Mycenae, Christos Doulos, who first discovered it, seems to have been applied only on a few objects. It is a highly rare technique that involves the application of gold leafing to a surface, creating a textured effect.

**Fig. 13.** Gold embroïdy technique.

**Fig. 14.** Gold embroïdy technique.

**Fig. 15.** Gold embroïdy technique.

**Filling materials: Emery?**

Emery is a highly abrasive material that is used in various applications. It is a naturally occurring mineral that is used in various applications, such as grinding and polishing. Emery is a highly abrasive material that is used in various applications, such as grinding and polishing.

**Fig. 16.** Emery material.

7. Save your file first as ppt και then as pdf.

8. To print your poster, take the pdf file to printing services and inform the person in charge about the dimensions of your poster (100cmx70.7cm). Ask for the poster to be printed on the thinnest paper possible. Place the roll in a carton tube (like the ones used for architectural drawings) to protect it during transportation.

9. The posters must be delivered (in person or by post) until Friday 2 December 2022, at the address:

Paul and Alexandra Canellopoulos Museum  
12 Theorias Street, 105 55, Athens, Greece  
(tel. +30 210 3319300)  
(att. N. Papadimitriou, for the Attica Conference)