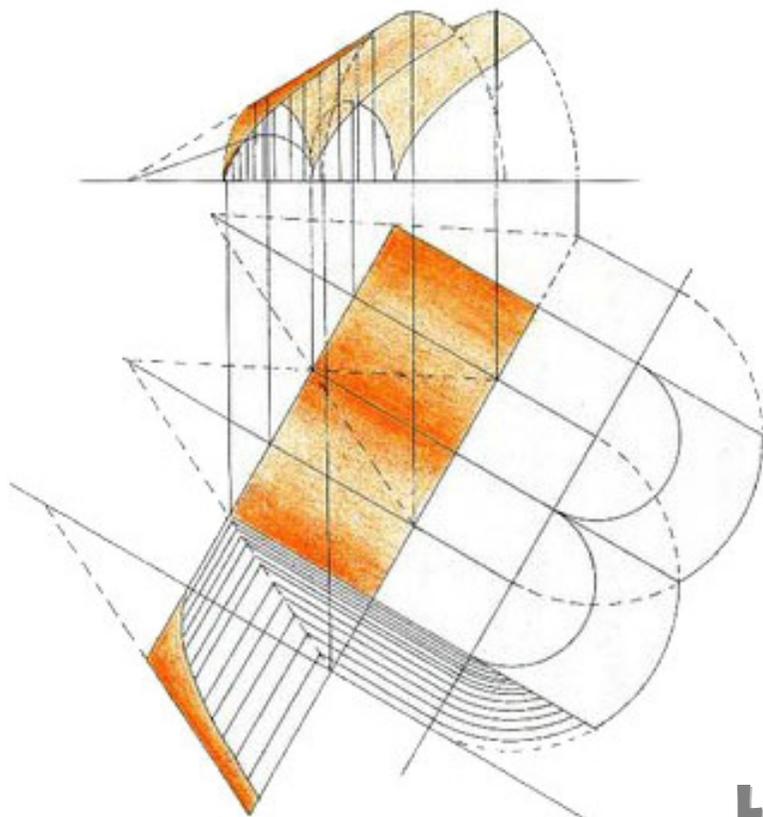




**GEOMETRÍA**



Programa Año 2010.



**GEOMETRÍA**

**IDIOMA**

**LENGUAJE**

**DEL DISEÑO**

**Las PALABRAS para el LENGUAJE**

**Las NOTAS para la MÚSICA**

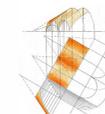
**Los NÚMEROS para las MATEMÁTICAS**

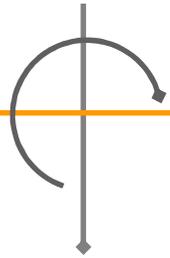
UNIVERSIDAD DE CHILE

Facultad de Arquitectura y  
Urbanismo

Profesora: Mirtha Pallarés Torres  
Ayudante: Karla González Lepillán

Geometría  
Primer Año





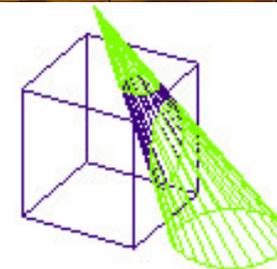
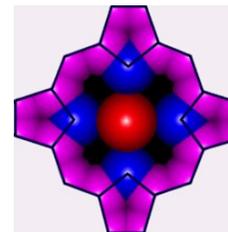
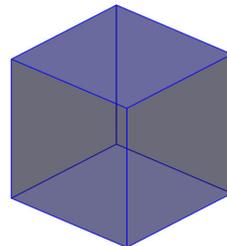
**GEOMETRÍA**



Programa Año 2010.

## Geometría.

•Un lenguaje estructurado.



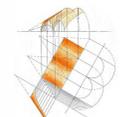
## ESTRUCTURA Y LENGUAJE

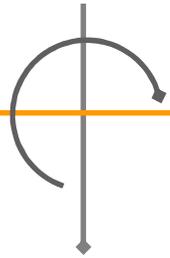
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Primer Año

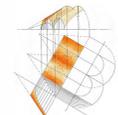
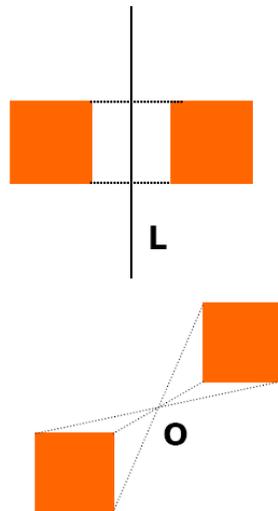


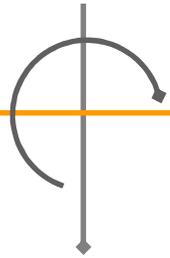


## Lenguaje estructurado expresado en:

- Espacios Públicos.

### ■ Simetría



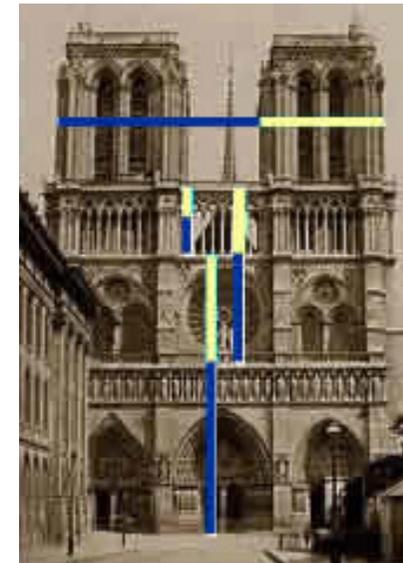
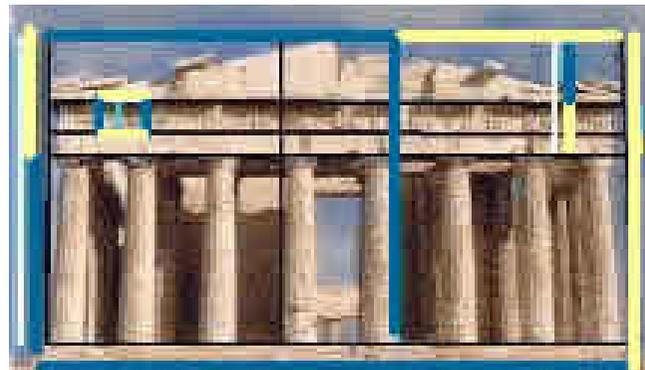
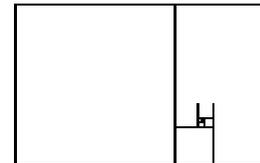
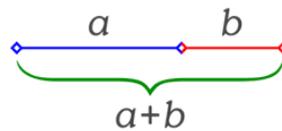


# GEOMETRÍA

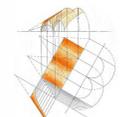
Programa Año 2010.

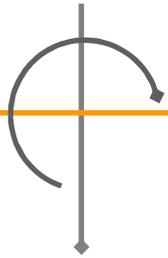
Lenguaje estructurado expresado en:

•Proporción Áurea.



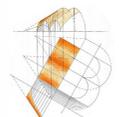
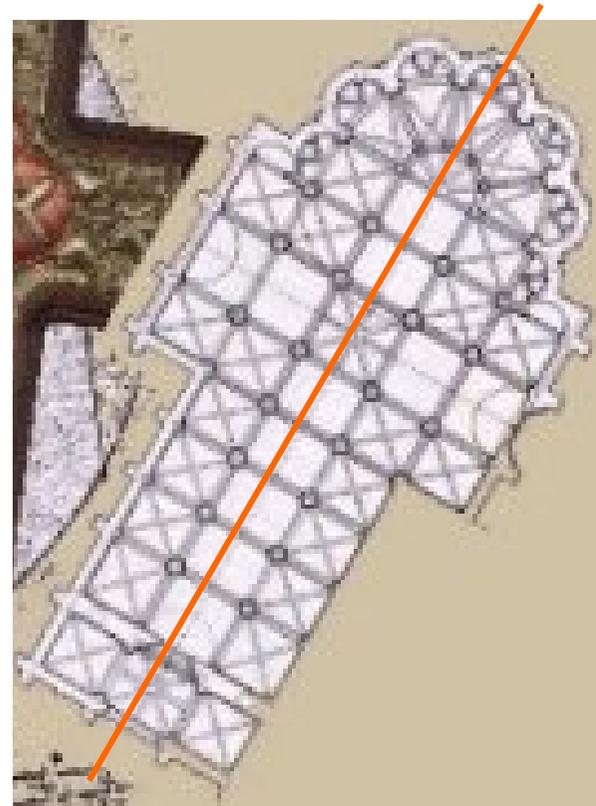
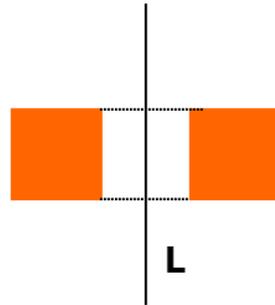
**DIVINA PROPORCIÓN/ PROPORCIÓN AUREA**

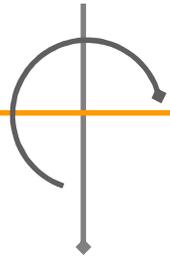




## Lenguaje estructurado expresado en:

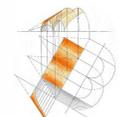
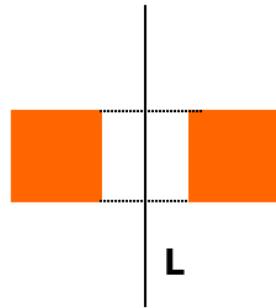
- Patrones Simétricos.

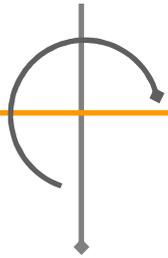




## Lenguaje estructurado expresado en:

- Infraestructura.



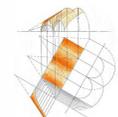
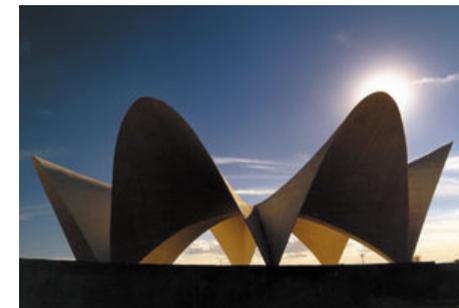
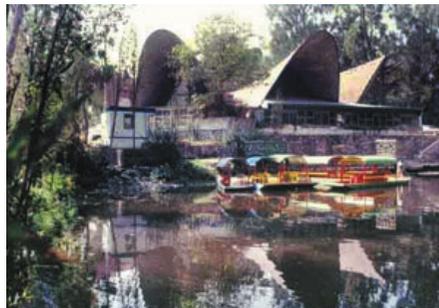
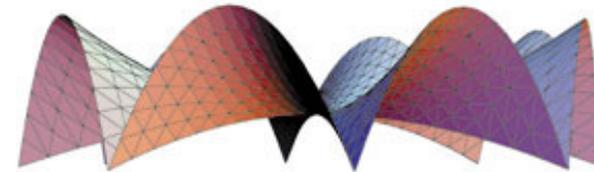
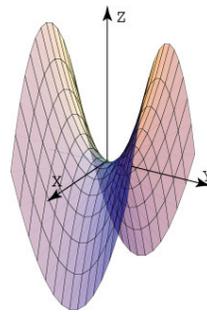
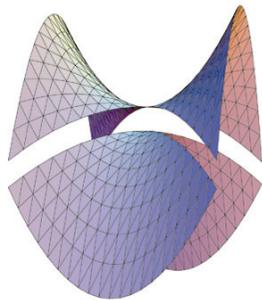


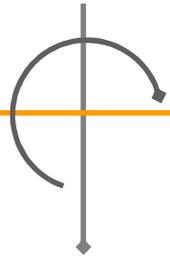
# GEOMETRÍA

Programa Año 2010.

## Lenguaje estructurado expresado en:

•Superficies regladas



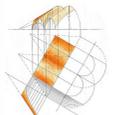
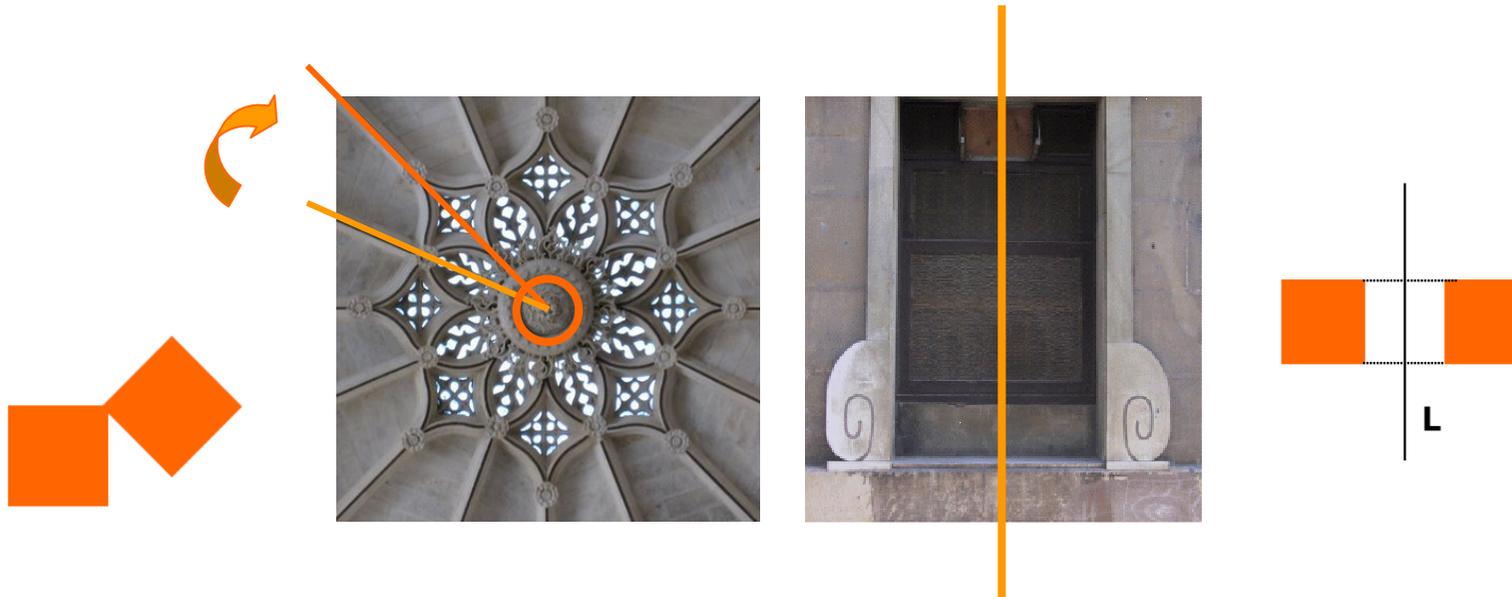


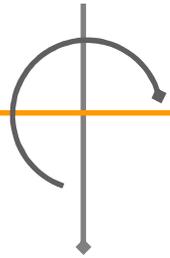
# GEOMETRÍA

Programa Año 2010.

## Lenguaje estructurado expresado en:

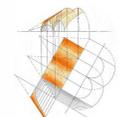
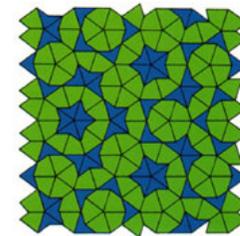
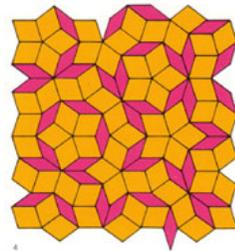
- Terminaciones.

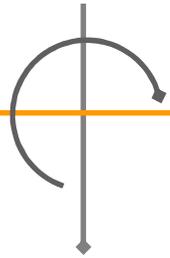




## Lenguaje estructurado expresado en:

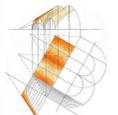
- Ornamentos.

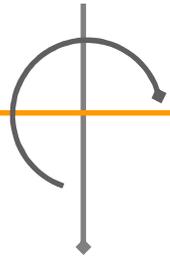




## Lenguaje estructurado expresado en:

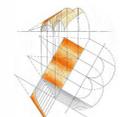
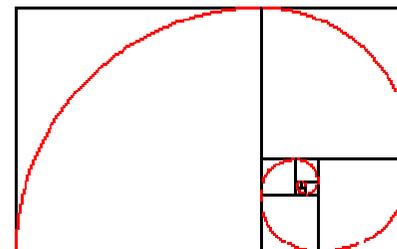
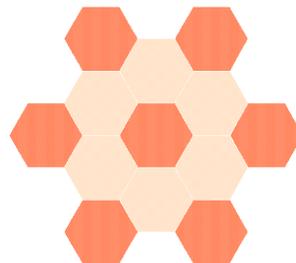
- Mobiliario.





## Lenguaje estructurado expresado en:

•Flora y Fauna

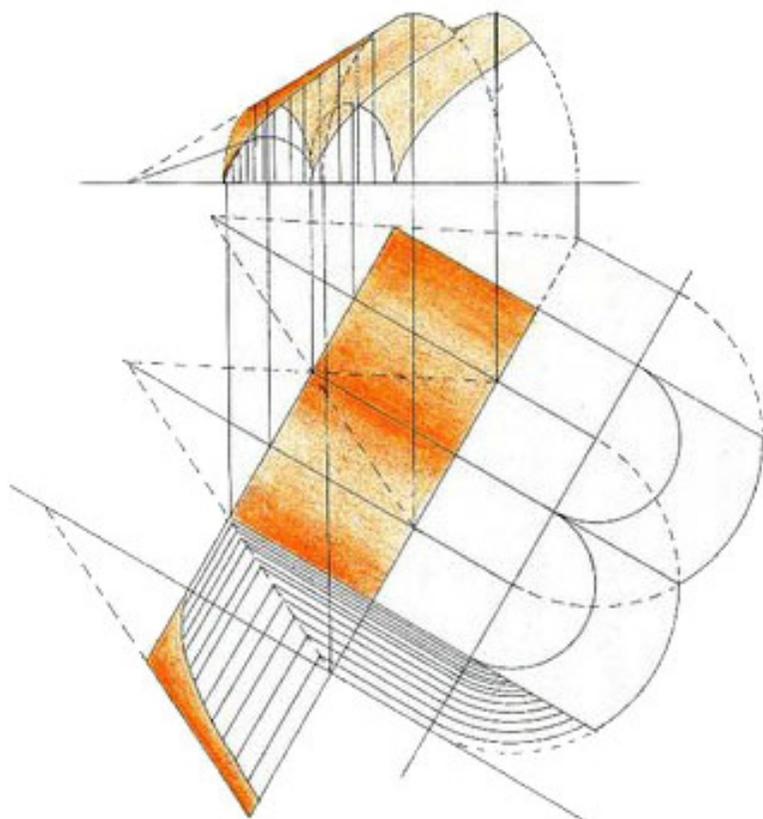




**GEOMETRÍA**



**P r o g r a m a   A ñ o   2010.**



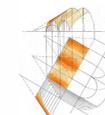
# **CONTENIDOS PROGRAMATICOS**

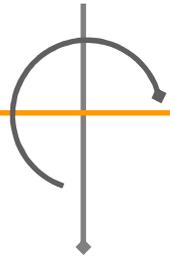
UNIVERSIDAD DE CHILE

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Geometría  
Primer Año



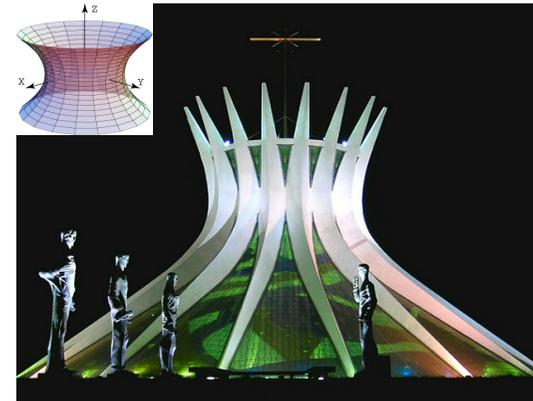
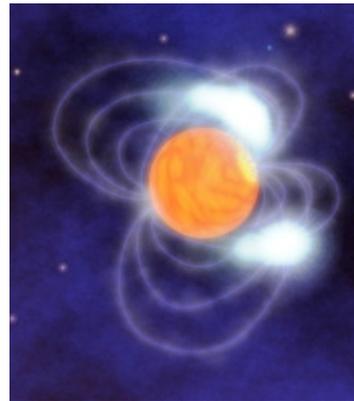
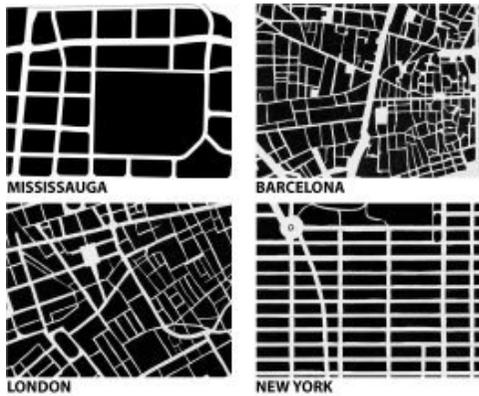


# GEOMETRÍA

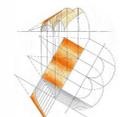


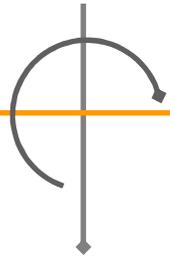
Programa Año 2010.

## Descripción.

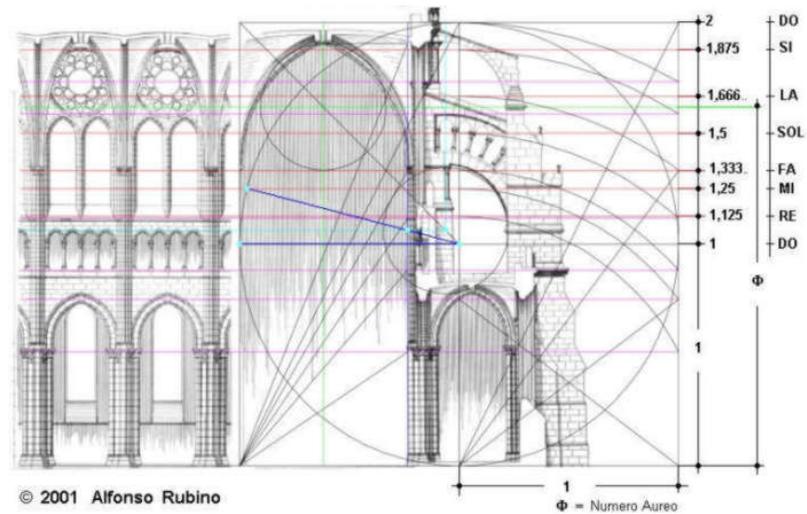
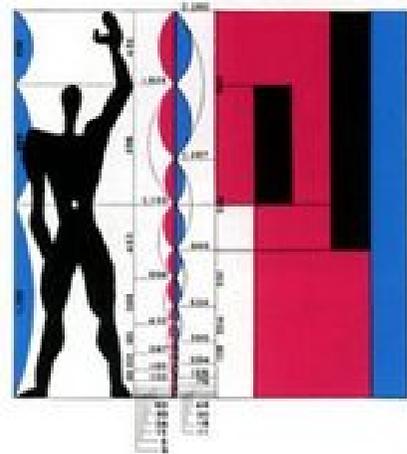


- Actividad graduada y orientada.

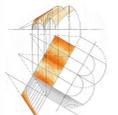


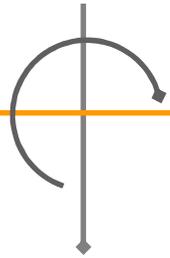


## Objetivo Intelectual.

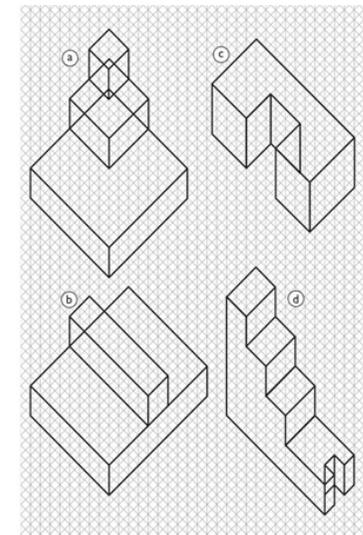
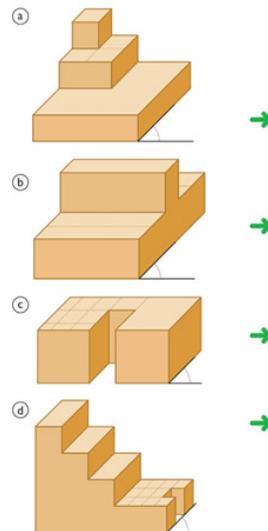
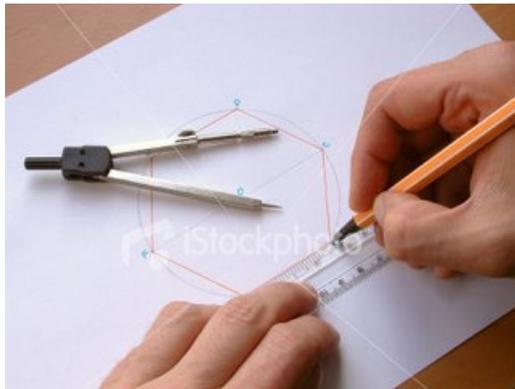


- Forma y orienta al concepto y la ley, a fin de medir e intuir el espacio.

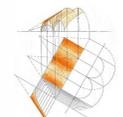


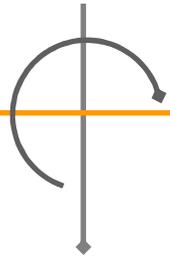


## Objetivo Psicomotor.

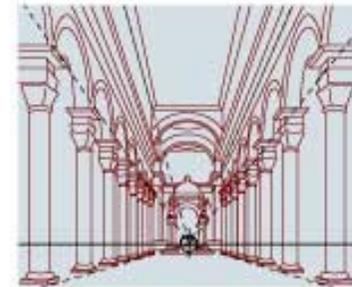
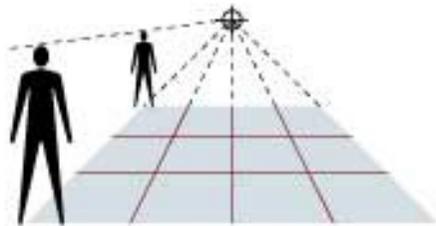


- Habilita entregando técnicas de representación espacial y manejo mecánico e instrumental.

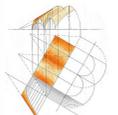


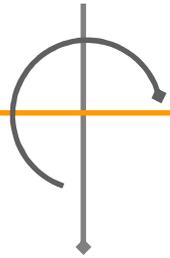


### Objetivo Psicomotor.

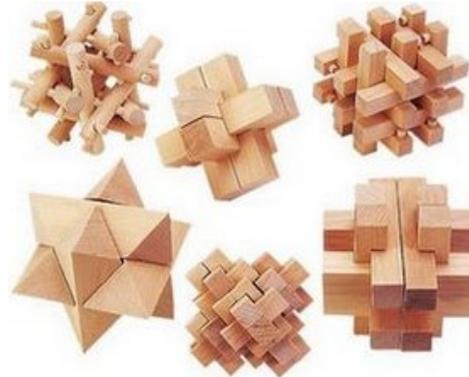
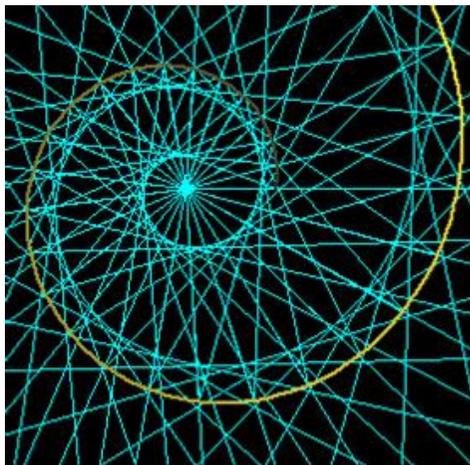


- Habilidad para expresar el espacio a través del lenguaje geométrico.

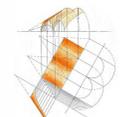


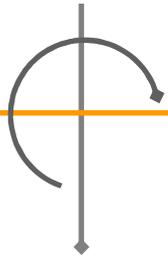


## Objetivo Afectivo.



- Estimula la exploración de la forma y los espacios y los espacios geométricos .
- Estimula los procesos creativos.





# GEOMETRÍA



Programa Año 2010.

## Unidades Temáticas.

- Teoría de las Transformaciones.
- Transformaciones Euclidianas.

- Transformaciones Proyectivas de 1º Categoría.

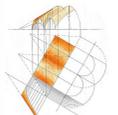
- Transformaciones Proyectivas de 2º Categoría.

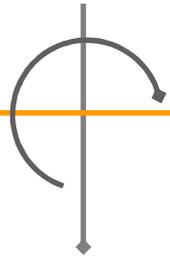
## 1º Semestre.

• 1º CICLO.

• 2º CICLO.

• 3º CICLO.





# GEOMETRÍA



Programa Año 2010.

## Unidades Temáticas.

- Proyección Afín Ortogonal
- Transformación de formas tridimensionales en formas bidimensionales.

- Transformaciones de elementos proyectantes

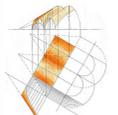
- Perspectiva.

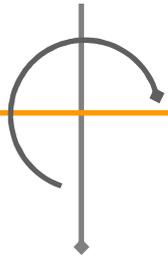
## 2º Semestre.

- 4º CICLO.

- 5º CICLO.

- 6º CICLO.





# GEOMETRÍA

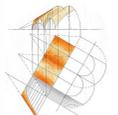
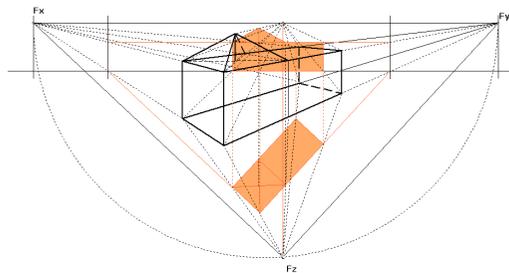
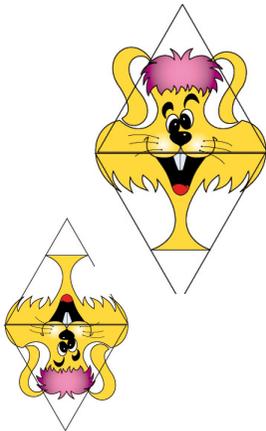
Programa Año 2010.

## 1º Ciclo.

- Teoremas.
- Definiciones y notaciones.



- Teoría de las Transformaciones.
- Isometrías, o Movimientos Rígidos.
- Isomórficas
- Anamórficas.



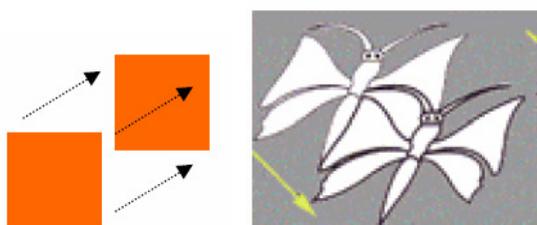


# GEOMETRÍA



Programa Año 2010.

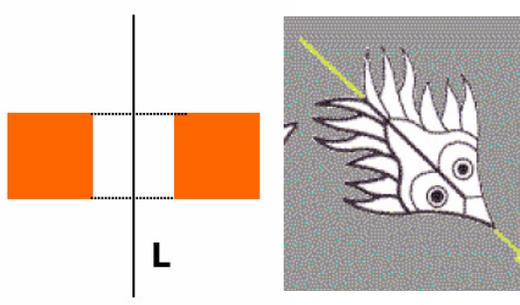
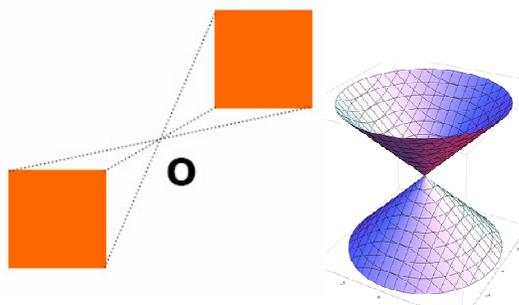
## Isometrías.



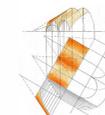
• Transformaciones que mantienen la forma. Formas congruentes .

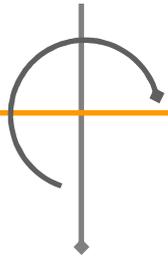
• Traslaciones.

• Rotaciones.

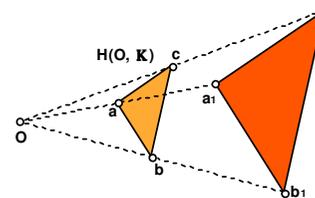


• Reflexiones con respecto a un punto y a una recta.



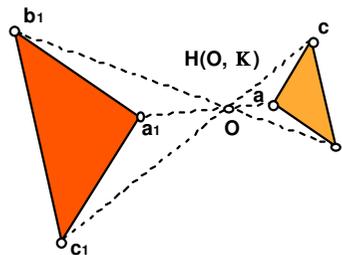


## Transformaciones Isomórficas.

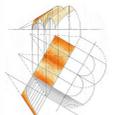


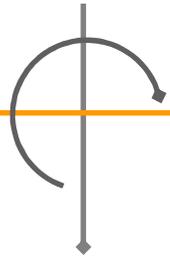
- Producto de Transformaciones que generan formas semejantes.

- Homotecia Directa, la forma aumenta de tamaño.

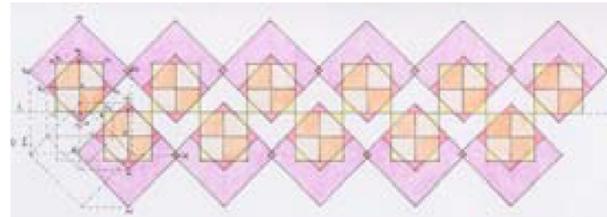
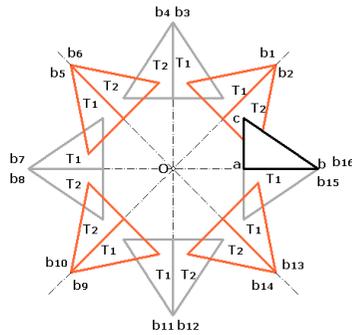


- Homotecia Inversa, la forma disminuye de tamaño.



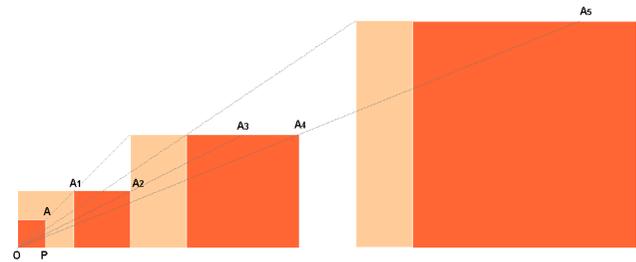
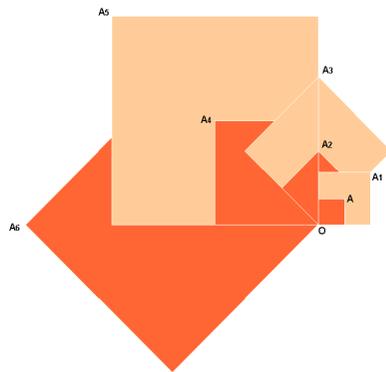


## Combinación de Transformaciones.

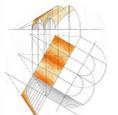


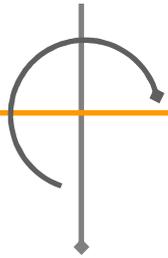
- Producto de Transformaciones que generan simetrías traslatorias y rotatorias.

- Simetrías donde intervienen transformaciones que dan origen solo a formas congruentes



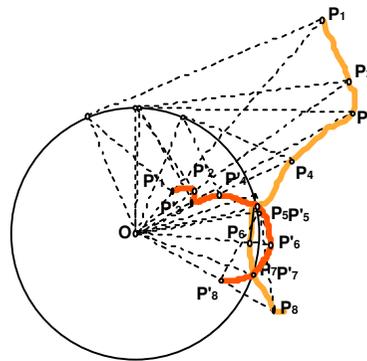
- Simetrías donde interviene la transformación homotecia.





### Transformaciones Anamórficas.

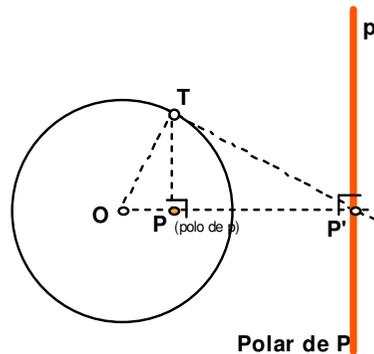
• Transformación involutiva.



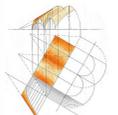
• Transformaciones que dan origen a nuevas formas.

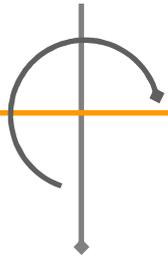
• Inversión.

• Polos y Polares de Puntos y Curvas.

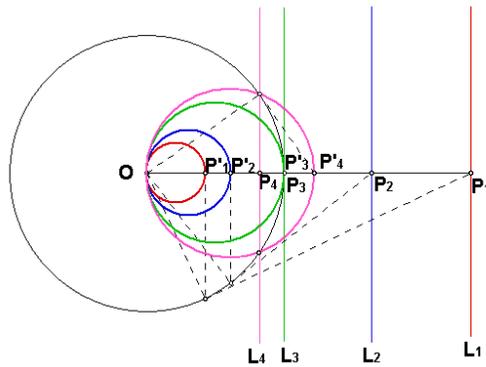
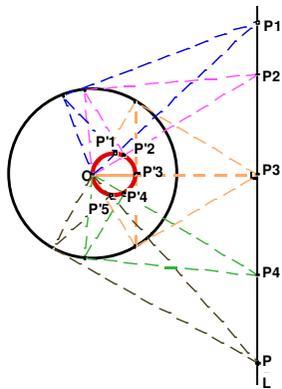


• Polo Polar



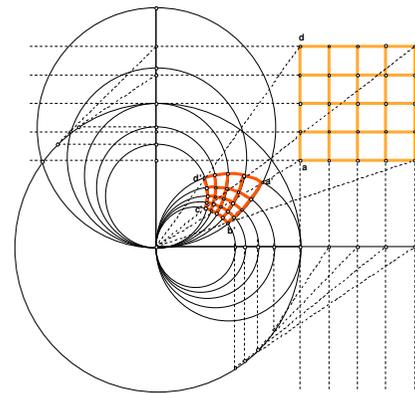
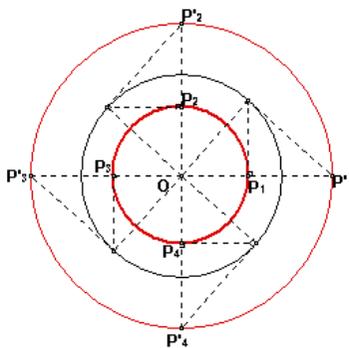


### Transformación Inversión.



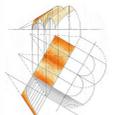
• Inversos de puntos y curvas.

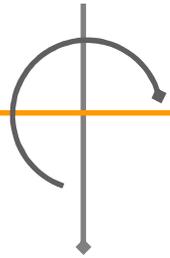
• Rectas que se invierten en circunferencias.



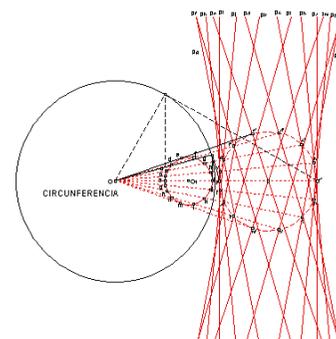
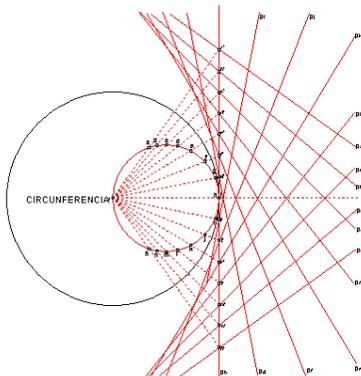
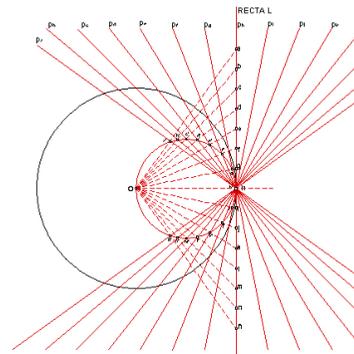
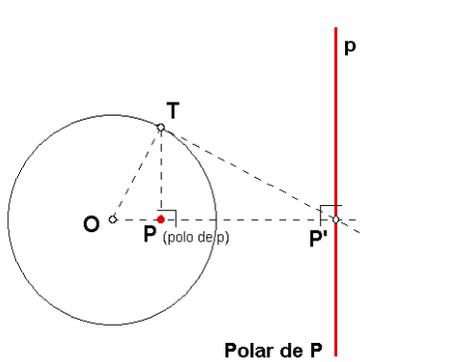
• Circunferencias que se invierten en circunferencias

• Aplicación.





## Transformación Polo Polar.

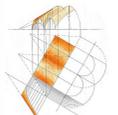


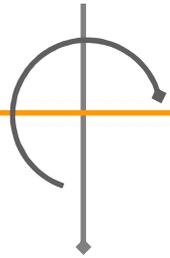
• Polares de puntos, rectas y circunferencias.

• Polar de un Punto.

• Polar de una Recta

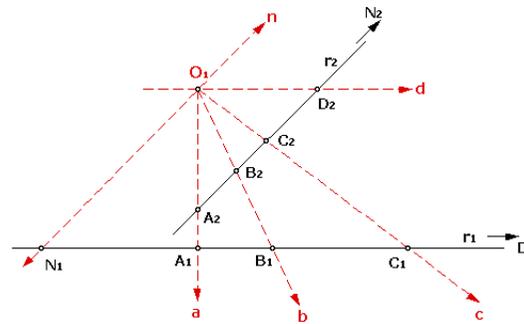
• Polar de una Circunferencia.





2º Ciclo.

- Plano y espacio proyectivo.

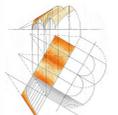
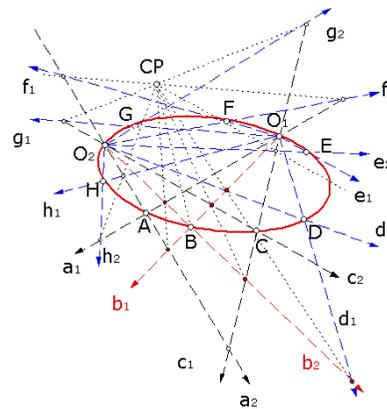
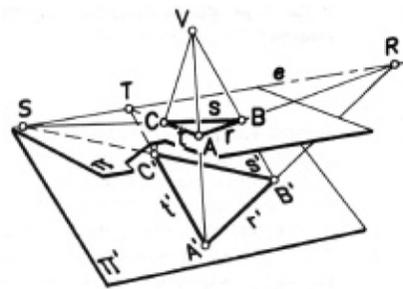


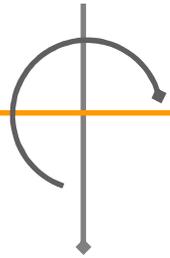
- Transformaciones Proyectivas de 1º Categoría.

- Alineación y Haces.

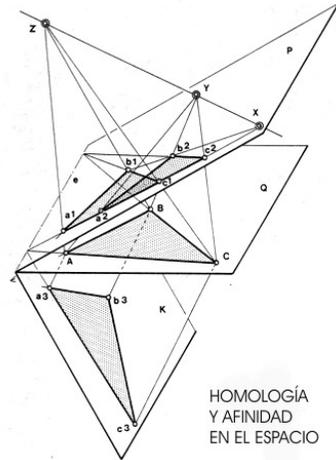
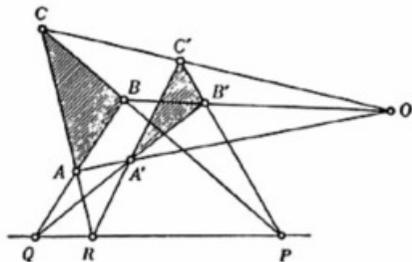
- Concepto Homología

- Definición de Cónicas.





### 3º Ciclo.

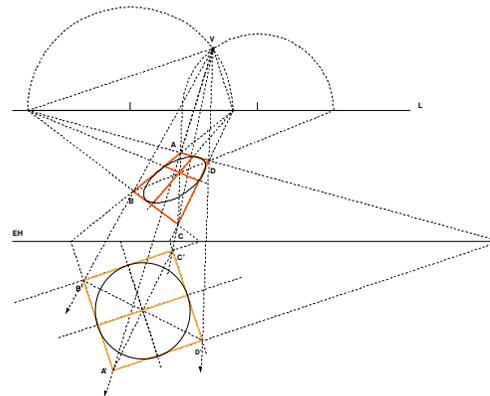
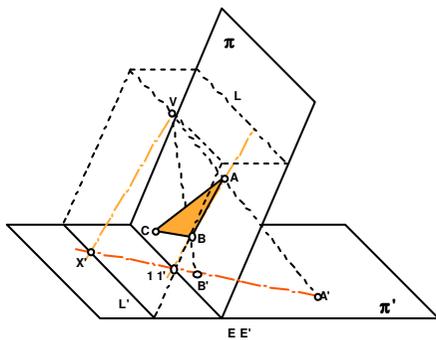


- Transformaciones Proyectivas de 2º Categoría.

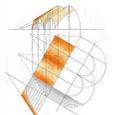
- Teorema de Desargues.

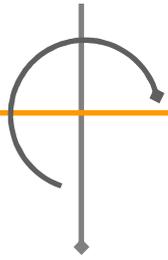
- Definición Espacial de Homología

- Homología en su caso general.

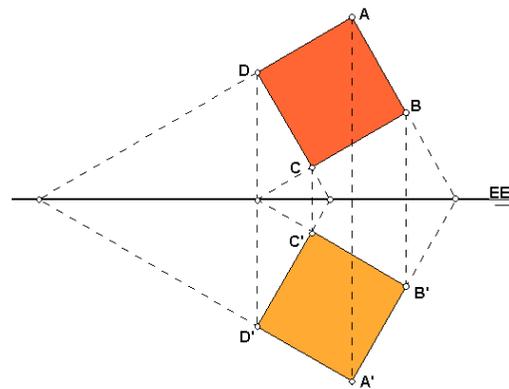
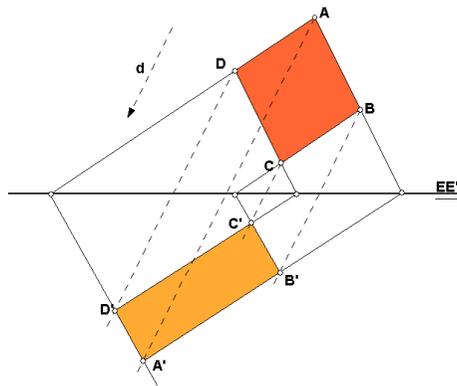
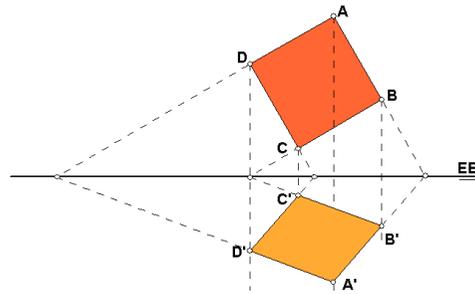
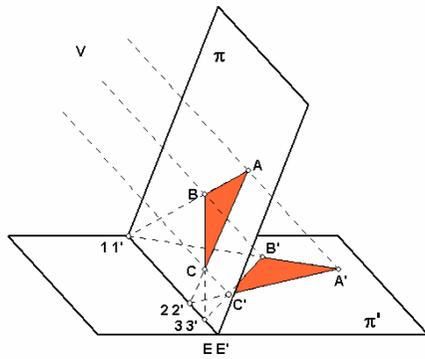


- Homología de transformaciones Euclidianas.

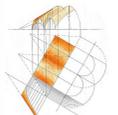


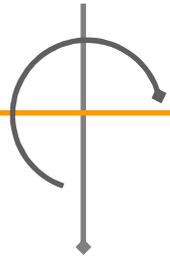


3º Ciclo.

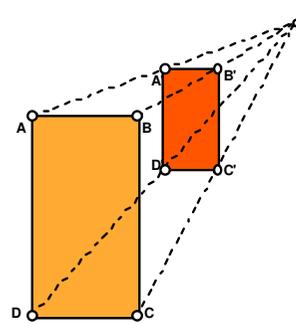
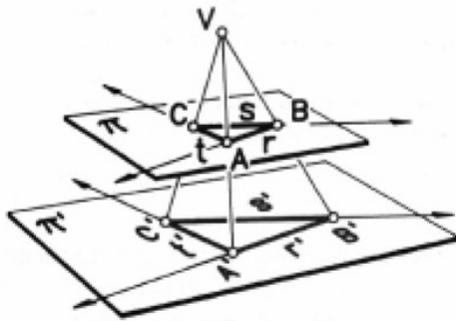


- Homología Afín.
- Homología Afín Recta
- Homología Afín Oblicua.
- Homología Afín Simétrica.



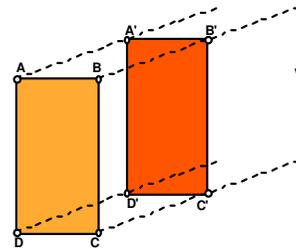
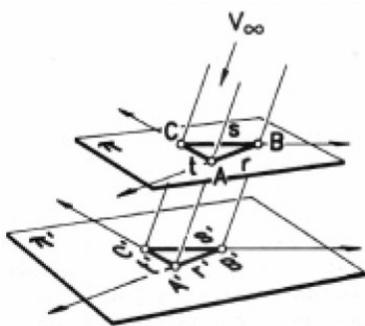


**3º Ciclo.**

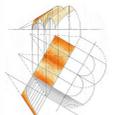


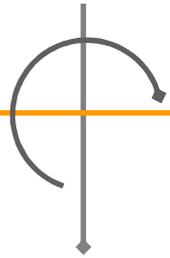
• Casos Particulares de Homologías.

• Homotecia.



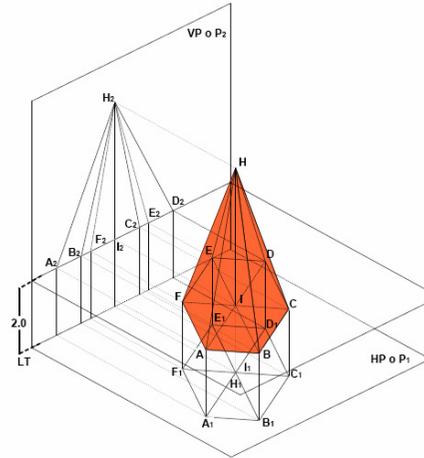
• Homotecia Paralela.





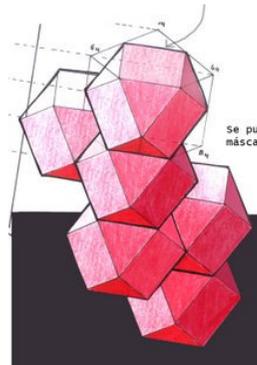
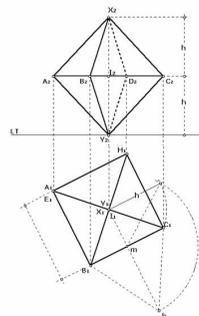
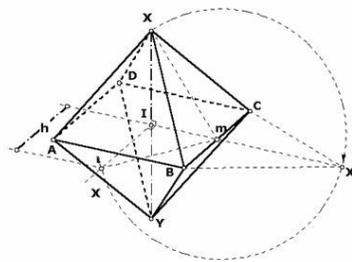
## 4º Ciclo.

- Transformación homológicas de formas tridimensionales en formas bidimensionales.



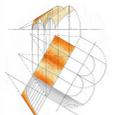
- Proyección Afín Ortogonal.

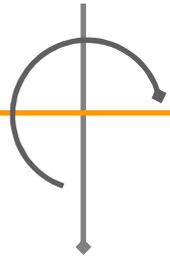
- Proyección de sólidos en planos de proyección.



- Determinación de elementos fundamentales

- Determinación de Planos, inclusión de elementos y sus relaciones

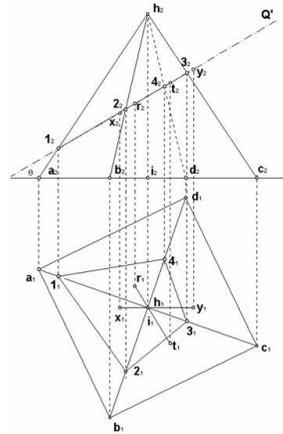
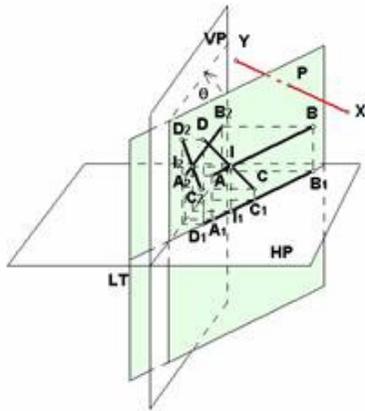




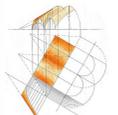
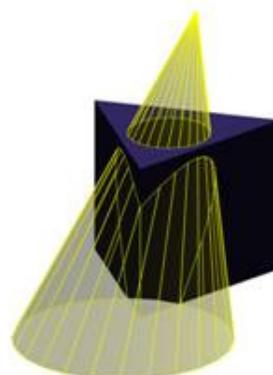
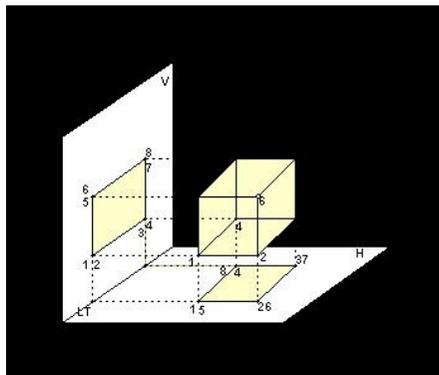
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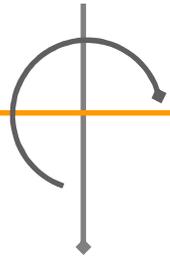
Programa Año 2010.

5º Ciclo.



- Proyección Afín Ortogonal.
- Penetración de rectas en planos.
- Secciones Planas.
- Verdaderas Magnitudes.
- Intersección de Volúmenes

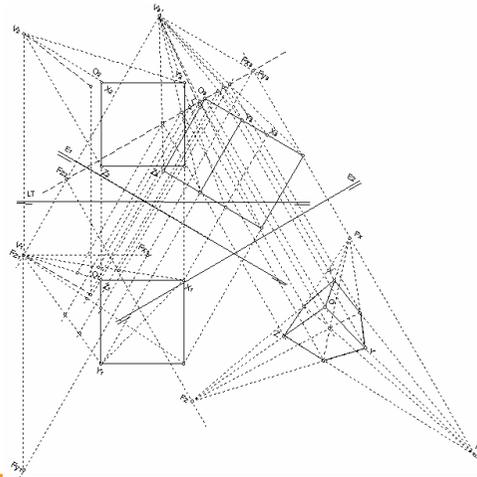
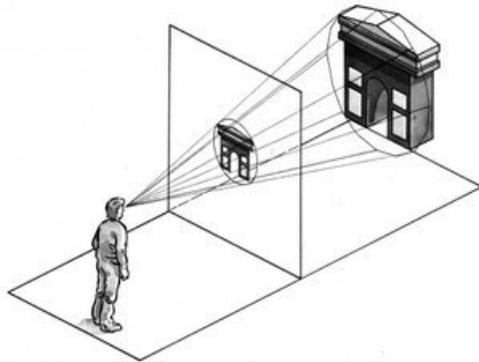




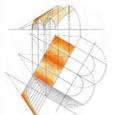
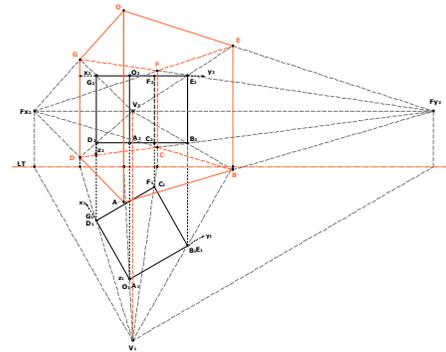
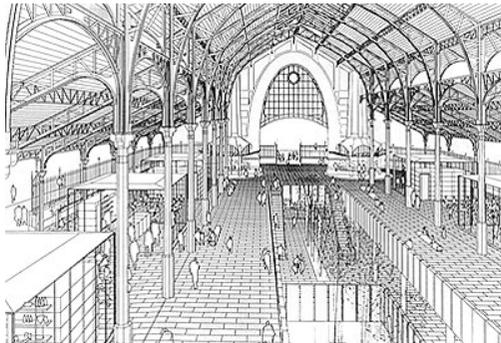
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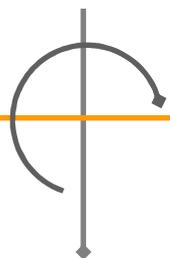
Programa Año 2010.

6º Ciclo.



- Perspectiva.
- En su caso General.
- Perspectivas Particulares.





## Metodología.

- CLASES EXPOSITIVAS; Trabajos individuales y grupales.
- CLASES PRACTICAS, con apoyo instrumental y computacional. (Taller)

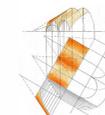
## Evaluación.

- |                     |                      |
|---------------------|----------------------|
| • CONTROL N° 1: 20% |                      |
| • CONTROL N° 2: 20% | Ejercicios y Tareas. |
| • CONTROL N° 3: 20% | 1ª Semestre: 10%     |
| • CONTROL N° 4: 20% | 2º Semestre: 10%     |

---

**Total Controles 80%**

**Total Ejercicios 20%**





### Bibliografía.

<b>NOMBRE</b>	<b>AUTOR</b>	<b>EDITORIAL</b>
<b>Apuntes de Geometría</b>	<b>Marcelo Valenzuela V</b>	<b>Imprenta FAU.</b>
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<b>Geometría Descriptiva y Aplicada</b>	<b>Kathryn Holliday Darr</b>	<b>I. Thomson Editores</b>

