Name:	Date:

Programming Without Computer

Language vs. library
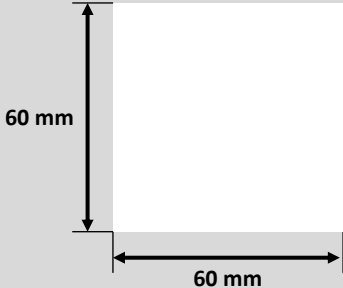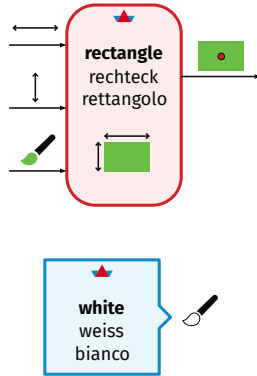
Complete the missing grammar rules and word definitions:

Language	Library
Putting words together in a sentence	Vocabulary

Paola brings an apple to her cousin. Paola:　　proper name brings:　　_____ an:　　　indefinite article apple:　　common name to:　　　preposition her:　　　possessive adjective cousin:　　_____	**bicycle**, s. f. – Vehicle with two aligned wheels, of which the rear, traditionally, is operated, through the pedals, by the cyclist's legs. **teacher**, n., adj. – _____ _____ _____ **philosopher**, s. m. – _____ _____

Tamaro Cards – Create graphics

Language	Library
Combining words in a program	Vocabulary

arguments · function · parameters · return value · constant

rectangle rechteck rettangolo

red rot rosso

80

40

Create a **rectangle**, with its dimensions (length and height) and color

triangle dreieck triangolo

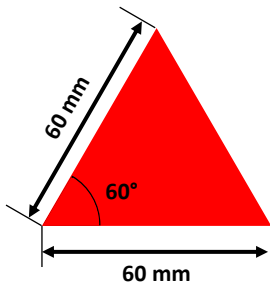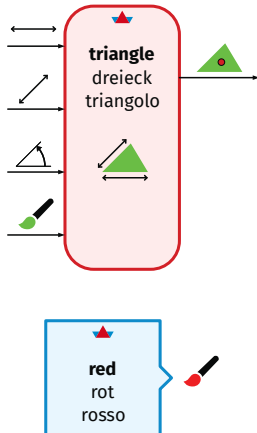Create a **triangle**, with two sides, the angle between them and the color

Numbers implicitly have a unit.
To create the shapes, we use 1 unit = 1mm.
On the computer, 1 unit = 1 pixel.

Program a rectangle

1. Cut with scissors:	**Library**	**2.** Create the program with the cards:

The **rectangle** `function` has three **parameters**.
What are the **arguments** you associated with these three **parameters**?

Program a red triangular roof

1. Cut with scissors:	**Library**	**2.** Create the program with the cards:

The **triangle** `function` has four **parameters**.
What are the **arguments** you associated with these four **parameters**?
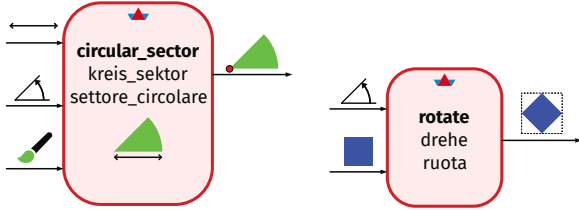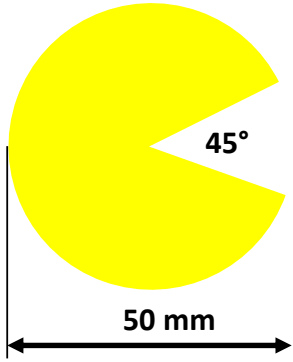
Program a house

Create the program with the cards:

Can you **explain the** program with the cards to your grandparents in words so that it is clear what figure it produces?
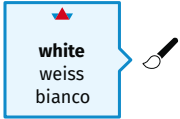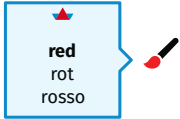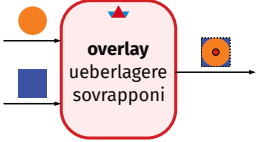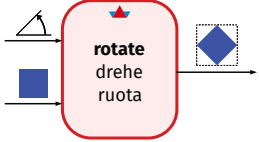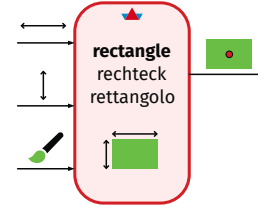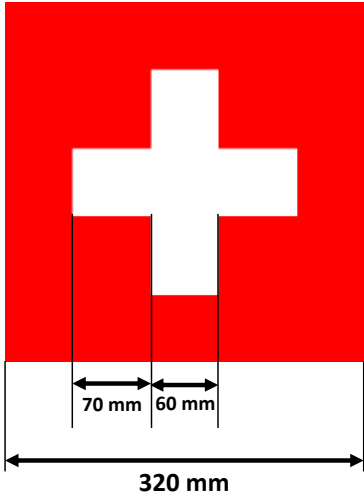
Program the Pac-Man

Library	
Constants:	**Functions:**
yellow gelb giallo	circular_sector kreis_sektor settore_circolare rotate drehe ruota
45° 50 mm	Create the Pac-Man program with cards:

What angle did you use for the circular sector?

How many degrees did you rotate the circular sector to get Pac-Man?

Program the Swiss flag

Library		
Constants:	**Functions:**	

Constants:

white
weiss
bianco

red
rot
rosso

Functions:

overlay
ueberlagere
sovrapponi

rotate
drehe
ruota

rectangle
rechteck
rettangolo

Create the program with the cards:
(A hint: try making the graphic with paper and scissors first!)

70 mm | 60 mm

320 mm

Did you need the `rotate` function?
Could it be useful in any way to build the Swiss flag?

Interpreting a program with Tamaro Cards

What graphics are produced with the following program?
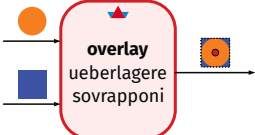This program uses these two new **functions**: `ellipse` and `beside`.
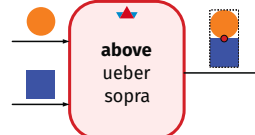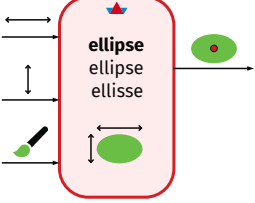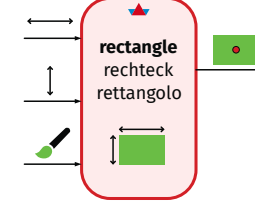

Draw the **return values** of each **function** (graphics are produced after the arrow to the right of the function). The **return value** you find furthest to the right is the final result of the program, the graphics we want to produce.
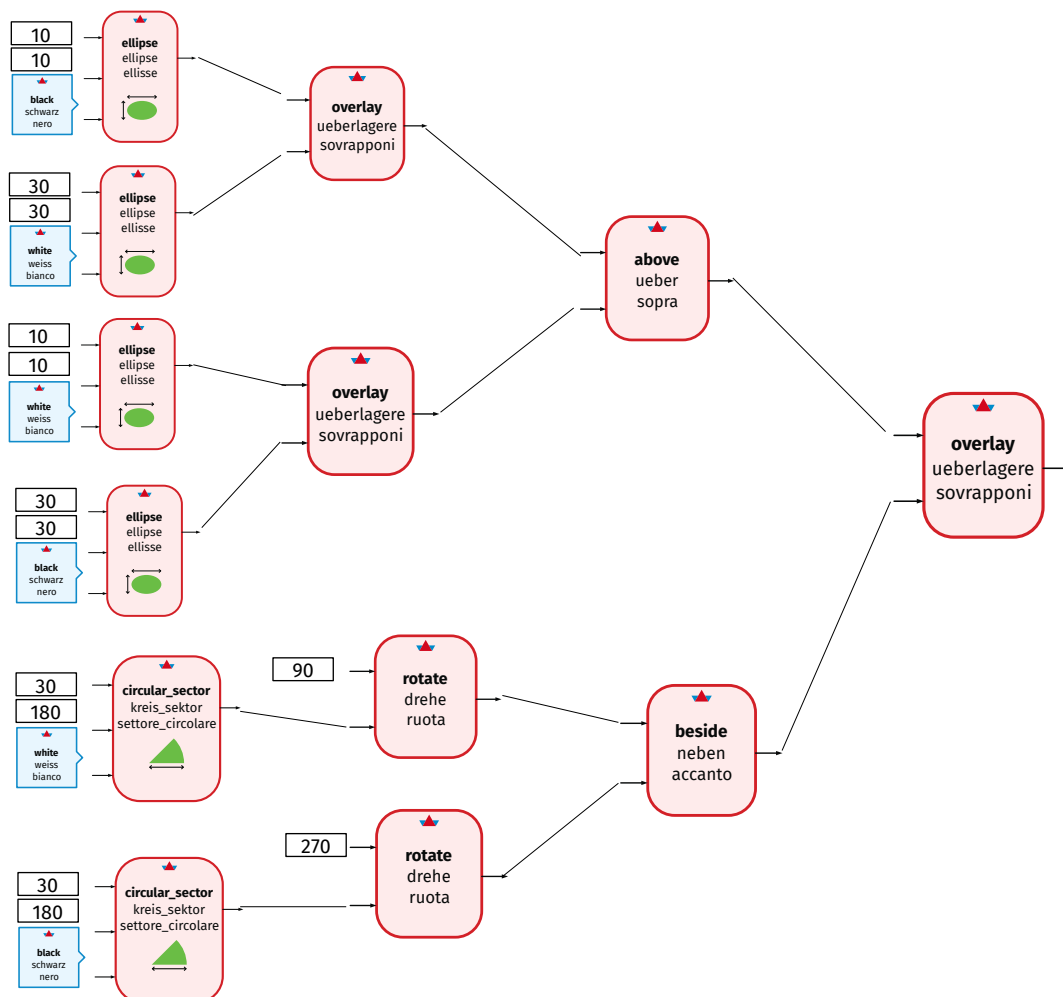
If you replace the **value** 270 with -90, will the result be the same?

Program the "traffic light" graphics

Library		
Constants:	**Functions:**	

Constants:

red
rot
rosso

yellow
gelb
giallo

black
schwarz
nero

Functions:

overlay
ueberlagere
sovrapponi

above
ueber
sopra

ellipse
ellipse
ellisse

rectangle
rechteck
rettangolo

Create the program with the cards:

80 mm

100 mm

What should be **different** in your program,
if the traffic light was green instead of red-yellow?

Program the graphic described below

Draw two yellow circular rings. Each ring has an internal radius of 30mm and an external radius of 90mm; the inner circle is black. Place the two circular rings side by side so that they are tangent to each other.

Library	
Constants:	**Functions:**
Graphic:	Create the program with the cards: