



Objects as a programming concept

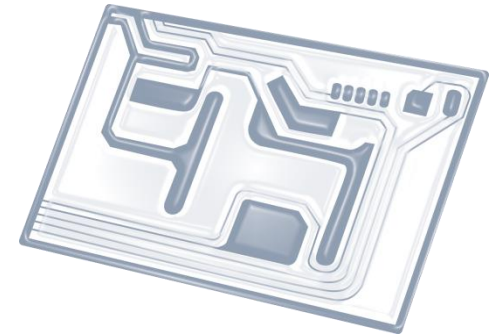
IB Computer Science



*Content developed by
Dartford Grammar School
Computer Science Department*



HL Topics 1-7, D1-4



1: System design



2: Computer Organisation



3: Networks



4: Computational thinking



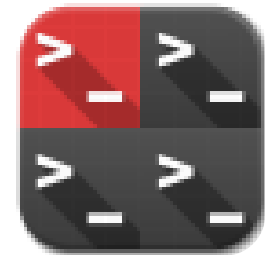
5: Abstract data structures



6: Resource management



7: Control



D: OOP

HL & SL D.1 Overview

D.1 Objects as a programming concept

D.1.1 Outline the general nature of an object

D.1.2 Distinguish between an object (definition, template or class) and instantiation

D.1.3 Construct unified modelling language (UML) diagrams to represent object designs

D.1.4 Interpret UML diagrams

D.1.5 Describe the process of decomposition into several related objects

D.1.6 Describe the relationships between objects for a given problem

D.1.7 Outline the need to reduce dependencies between objects in a given problem

D.1.8 Construct related objects for a given problem

D.1.9 Explain the need for different data types to represent data items

D.1.10 Describe how data items can be passed to and from actions as parameters



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5: Abstract data structures

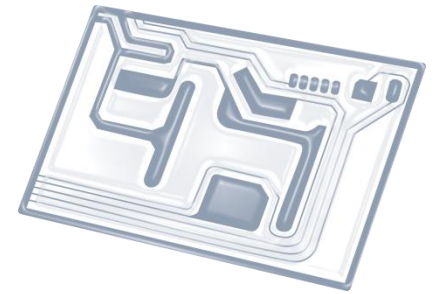
6: Resource management



7: Control

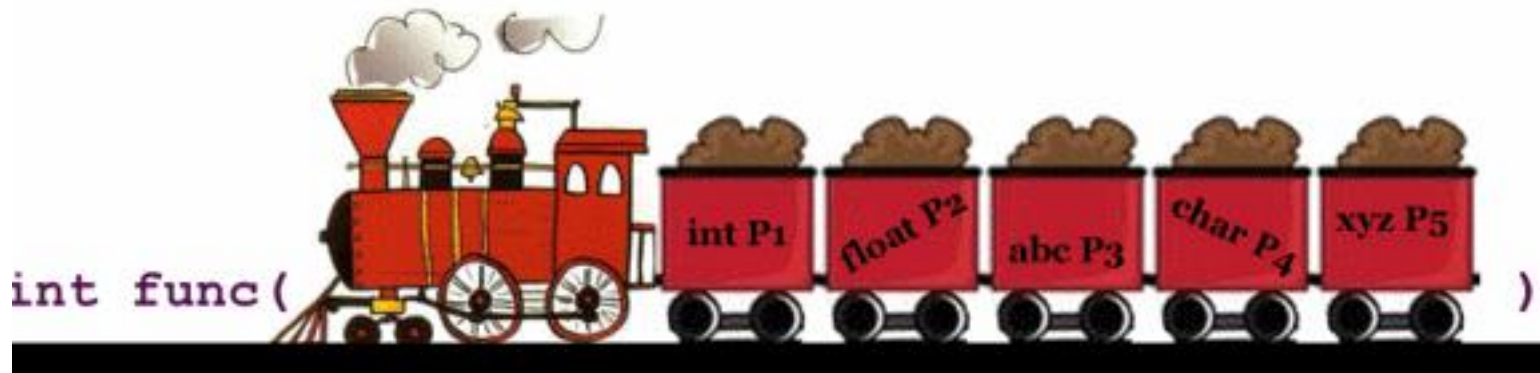
D: OOP





Topic D.1.10

Describe how data items can be **passed to** and **from** actions as **parameters**




Key terms

Function (Parameters)

In programming, a parameter is a special kind of **variable**, used in a **subroutine/method/function** to refer to one of the pieces of data provided as input to the subroutine. These pieces of data are called **arguments**.

- Examples:
 - `System.out.println("Something");`
 - `setName("Sam");`
 - `Patient("Ben", 34, false, "penicillin");`

```
1 public class Example
2 {
3     public static void one ()
4     {
5         int y = 1;
6         System.out.println (y);
7         two (y);
8         System.out.println (y);
9     }
10
11     public static void two (int x)
12     {
13         x = 2;
14         System.out.println (x);
15     }
16 }
```



```
public class MyMethods {
```

```
    int total() {  
        int a_Value = 10 + 10;  
  
        return a_Value;  
    }
```



No input parameter,
but function returns a value

```
    void print_text() {  
  
        System.out.println( "Some Text Here" );  
    }
```



No input
parameter,
no return
value – void

```
    int total(int aNumber) {  
        int a_Value = aNumber + 20;  
  
        return a_Value;  
    }
```



Takes input parameter,
and function returns a value

```
}
```

