Diving Beetle Game
PRIMM Algorithm Page 1
Don't load Scratch
Work with a partner

Don't load Scratch

Work with a partner of same ability

If condition action

condition-starts-action

Diving Beetle Algorithms A-E

A	B	C

Start on green flag
Loop always
  If touching light grey
  Stop everything
	Start of green flag
	Go x219 y153
	Point down
	Loop always
	  Move 1 step
	  Bounce if hit sides
		Start on green flag
		Loop always
		  If left arrow key pressed
		  Turn left 15 degrees

D	E

Start on green flag
Loop always
  If touching Fish1 sprite
  Say Beetle wins for seconds
  End everything
	Start on green flag
	Loop always
	  If right arrow key touched
	  Turn right 15 degrees

Reading Algorithms

1, What will algorithm A do if the diving beetle touches the colour light grey?

2, What is the first thing that will happen if the diving beetle touches Fish1?

3, What type of loops are all the **condition-starts-actions** inside?

4, Which algorithm **hasn't** got a condition?

5, What happens if you press the right arrow key?

Match the algorithm block to the correct prediction. The first one has been done for you.
Read the main program code sections A to E slowly from top to bottom. Beware there is a false predictions which doesn't match any code above!

D					
Stop the program if the diving beetle touches the fish1 sprite	Stop everything if the diving beetle touches the colour light grey	Turn left if left key pressed	Turn right if left key pressed	Go to start position, move continually, bouncing of the edge if you reach it.	Turn right if right key pressed

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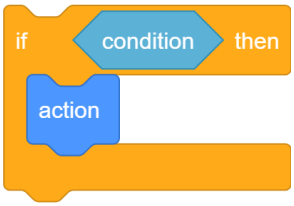
Diving Beetle Game
PRIMM Algorithm Page 2
Start Scratch and load divingbeetle



condition-starts-action

Run the code
Play the divingbeetle game a few times.
Did you predict the outcomes?

Mark your reading code and prediction matches on page 1 using the answer sheep.

Investigate (Run the programs lots of times but don't change the code)

Look at the code inside Fish1 sprite

Fish1 Sprite Questions
1, What direction is the Fish1 sprite pointing at the start of the game?

2, How many **condition-starts-action** blocks are there in the Fish1 code?

3, If Fish1 touches the colour grey how many steps will it move? *HINT all moves are added together*

4, If Fish1 touches the diving beetle what two things happen?

Look at the code inside pollution1 sprite

pollution1 Sprite Questions
1, What size does the pollution1 sprite start at?

2, After one second what size will the pollution1 sprite be?

3, How fast does the pollution1 sprite move?

Now mark your investigate work using the answer sheep

Name

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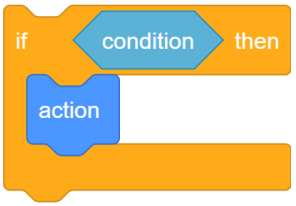
Diving Beetle Game
PRIMM Algorithm Page 3



condition-starts-action

Modify (Run the code and make small changes)

Diving Beetle Questions

1, Can you make the diving beetle move faster? What did you change?

2, Can you make the diving beetle turn slower? What did you change?

3, Can you make the diving beetle point to the left when it starts? What did you change?

Fish1 Sprite Questions

1, Can you make the Fish1 sprite move faster? What did you change?

2, Can you make the Fish1 sprite say oh no! when it is caught by the diving beetle? What did you change?

pollution1 Questions

1, Modify the code in pollution1 can you make it start at 200%. What did you change? Is this a good idea? If yes or no why?

2, Modify the code in pollution1 so it starts at 300% and get smaller every second. What did you change to make it get smaller?

3, Make pollution1 always move down. What did you change?

Make inside

Convert these algorithm plans into code inside pollution2 so the sprite can be steered

```
Green flag start
Loop always
    If s pressed
        Turn right 10
```

```
Green flag start
Loop always
    If a pressed
        Turn left 10
```

Now mark this page using the answer sheep

Name

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Diving Beetle Game
Example Planner

Sometimes it can be useful to see how a game was planned before doing your own planning.

If condition action

condition-starts-action

Idea Level *My game will... My characters will be... The aim of the game will be....*

A beetle tries to catch a small fish whilst avoiding clouds of pollution.

Design Level What will your characters do?

Beetle – Move ① – Touch pollution end game
② – Turn right right arrow key
③ – Turn left left arrow key
④ – Touch fish end game

fish – touch beetle hide ⑤
– Move + bounce ⑥
– Touch pollution ⑦

Pollution – Start anywhere move/water.
– Move any direction

Design Level (Draw your game simply and use **condition-starts-action** in your algorithms)

① Beetle Move
Loop always
Move ½ step
Bounce on edge

② Loop always
If press right arrow
turn right 20°

③ Loop always
If press left arrow
turn left 20°

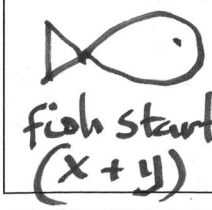
④ Loop always
If touch fish sprite
end game

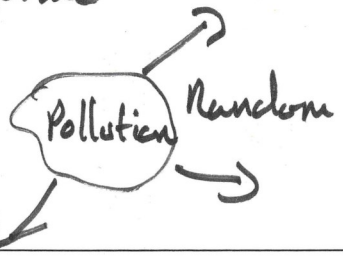
⑤ Loop always
If touch beetle
hide

Beetle start (x+y)

⑥ Loop always
Move 2 steps
Bounce

⑦ Loop always
If touch colour of pollution
Move Move steps





Initialisation Jot down how your sprites will always start in the same place

x+y blocks for start of fish and Beetle.

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Diving Beetle Game
PRIMM Page 4
You can share design ideas but must plan and code separately

If condition action

condition-starts-action

Idea Level *My game will… My characters will be… The aim of the game will be….*

Design Level What will your characters do?

Design Level (Draw your game simply and use **condition-starts-action** in your algorithms)

Initialisation Jot down how your sprites will always start in the same place

Name

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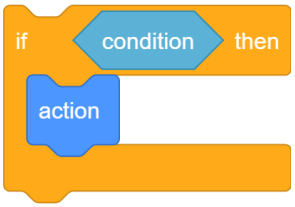
Diving Beetle Game
PRIMM Algorithm Answer



condition-starts-action

Reading code

1, What will algorithm A do if the diving beetle touches the colour light grey?
Stop everything (1 mark)
2, What is the first thing that will happen if the diving beetle touches the Fish1 sprite?
Say Beetle wins for seconds (1 mark)
3, What type of loops are all the if then condition-starts-action blocks inside?
Loop forever or forever or continuous loops (1 mark)
4, Which algorithm **hasn't** got a condition?
B (1 mark)
5, What happens if you press the right arrow key?
Turn right 15 degrees (1 make)

Match the code block to the correct prediction. The first one has been done for you.

Read the main program code sections A to E slowly from top to bottom. Beware there is a false predictions which doesn't match any code above! (1 mark for each prediction matched max 4 marks)

D	A	C	FALSE	B	E
Stop the program if the diving beetle touches the fish1 sprite	Stop everything if the diving beetle touches the colour light grey	Turn left if left key pressed	Turn right if left key pressed	Go to start position, move continually, bouncing of the edge if you reach it.	Turn right if right key pressed

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Investigate Answers

Look at the code inside Fish1 sprite

Fish1 Sprite Questions

1, What direction is the Fish1 sprite pointing at the start of the game?
90 degrees or right (1 mark)
2, How many if then condition-starts-action blocks are there in the Fish1 code?
2 (1 mark)
3, If Fish1 touches the colour grey how many steps will it move? (HINT all moves are added together)
1.5 steps it combines both move blocks (1 mark)
4, If Fish1 touches the diving beetle what two things happen?
Wait 1 second
Hide (1 mark for both)

Look at the code inside pollution1 sprite

pollution1 Sprite Questions

1, What size does the pollution1 sprite start at?
100% (1 mark)
2, After one second what size will the pollution1 sprite be?
110% (1 mark)
3, How fast does the pollution1 sprite move?
0.2 steps (1 mark)

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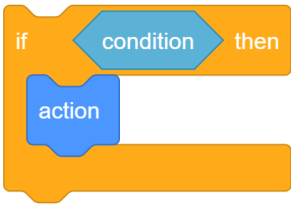
Diving Beetle Game
PRIMM Algorithm Answer



condition-starts-action

Modify (Run the code and make small changes)

Diving Beetle Questions

1, Can you make the diving beetle move faster? What did you change?
Move more than 1 step (1 mark)
2, Can you make the diving beetle turn slower? What did you change?
Change 15 degrees right or left to lower number (1 mark)
3, Can you make the diving beetle point to the left when it starts? What did you change?
Change point in direction to –90 (1 mark)

Fish1 Sprite Questions

1, Can you make the Fish1 sprite move faster? What did you change?
Move more than 0.5 step (1 mark)
2, Can you make the Fish1 sprite say oh no! when it is caught by the diving beetle? What did you change?
Add say oh no! for some seconds inside the if touching diving beetle condition and above wait 1 second (1 mark)

pollution1 Questions

1, Modify the code in pollution1 can you make it start at 200%. What did you change? Is this a good idea? If yes or no why?
Change set size to 200% (1 mark)
2, Modify the code in pollution1 so it starts at 300% and get smaller every second. What did you change to make it get smaller?
Change size by minus number % eg –10 (1 mark)
3, Make pollution1 always move down. What did you change?
Point in direction 180 (1 mark)

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