

# numpy\_arrays\_workbook\_answers

September 21, 2020

## 1 NUMPY ARRAYS WORKBOOK ANSWERS

Remember, there are different ways to write code to get the same answer, so your answer can be correct and different to the answer example!

If you feel stuck and want some in person help, then have a look at the events page to join in a workshop <https://swamphen.co.uk/events>.

```
In [ ]: # import numpy
import numpy as np
```

```
In [ ]: # create a 2 dimensional numpy array of integers 5 rows by 4 columns, max number 50
b = np.array(np.random.randint(50, size = [5,4]))
print(b)
```

```
In [ ]: # check that the dimension of the array is 2
b.ndim
```

```
In [ ]: # select the last element in the third row
b[2,-1]
```

```
In [ ]: # select the first two elements of the last row
b[-1, :2]
```

```
In [ ]: # select every other row
b[::2]
```

```
In [ ]: # select every other column
b[:, ::2]
```

```
In [ ]: # find where the even numbers are
np.where(b %2 == 0)
```

```
In [ ]: # sort the array into numerical order
np.sort(b)
```

```
In [ ]: # create a 3 dimensional NumPy array of integers 4 rows by 3 columns, max number 40
b = np.array([np.random.randint(40, size = [4,3])])
print(b)
```

```
In [ ]: # pick out the middle number of the second row
        b[0,2,1]

In [ ]: # is this a sensible use of a 3 dimensional array?

        # no, could be a 2 dimensional array just as well

In [ ]: # create a 3 dimensional NumPy array that contains 2 2dimensional arrays of 3 rows and

        c = np.array([np.random.randint(40, size =[3,4]), np.random.randint(40, size =[3,4])])
        print(c)

In [ ]: # does this need to be a 3 dimensional array?

        # yes

In [ ]: # select the second number from the middle row of the second 2dimensional array
        c[1,1,2]

In [ ]: # select a slice of the last two numbers from each row
        c[:, :,-2:]

In [ ]: # select alternate rows
        c[:, ::2, :]
```