

7. Dictionaries

=====

```
alien_0 = {'color': 'green', 'points': 5}
print(alien_0['color'])
print(alien_0['points'])
```

A dictionary in Python is a collection of key-value pairs. Each key is connected to a value, and you can use a key to access the value associated with that key.

```
alien_0 = {'color': 'green', 'points': 5}
print(alien_0)
u alien_0['x_position'] = 0
v alien_0['y_position'] = 25
print(alien_0)
```

```
alien_0 = {}
alien_0['color'] = 'green'
alien_0['points'] = 5
print(alien_0)
```

Removing Key-Value Pairs

```
alien_0 = {'color': 'green', 'points': 5}
print(alien_0)
del alien_0['points']
print(alien_0)
```

```
favorite_languages = {
    'jen': 'python',
    'sarah': 'c',
    'edward': 'ruby',
    'phil': 'python',
}
```

Looping Through All Key-Value Pairs

```
user_0 = {
    'username': 'efermi',
    'first': 'enrico',
    'last': 'fermi',
}
for key, value in user_0.items():
    print("\nKey: " + key)
    print("Value: " + value)
```

```
favorite_languages = {
```

```
'jen': 'python',  
'sarah': 'c',  
'edward': 'ruby',  
'phil': 'python',  
}
```

```
for name in favorite_languages.keys():  
    print(name.title())
```

```
favorite_languages = {  
    'jen': 'python',  
    'sarah': 'c',  
    'edward': 'ruby',  
    'phil': 'python',  
}
```

```
print("The following languages have been mentioned:")  
for language in favorite_languages.values():  
    print(language.title())
```

A List of Dictionaries

```
alien_0 = {'color': 'green', 'points': 5}  
alien_1 = {'color': 'yellow', 'points': 10}  
alien_2 = {'color': 'red', 'points': 15}
```

```
aliens = [alien_0, alien_1, alien_2]  
for alien in aliens:  
    print(alien)
```

```
-----  
# Make an empty list for storing aliens.  
aliens = []  
# Make 30 green aliens.  
for alien_number in range(0,30):  
    new_alien = {'color': 'green', 'points': 5, 'speed': 'slow'}  
    aliens.append(new_alien)
```

```
for alien in aliens[0:3]:  
    if alien['color'] == 'green':  
        alien['color'] = 'yellow'  
        alien['speed'] = 'medium'  
        alien['points'] = 10
```

```
# Show the first 5 aliens:  
for alien in aliens[0:5]:  
    print(alien)  
print("...")
```

```
favorite_languages = {  
    'jen': ['python', 'ruby'],  
    'sarah': ['c'],  
    'edward': ['ruby', 'go'],  
    'phil': ['python', 'haskell'],  
}
```

```
for name, languages in favorite_languages.items():  
    print("\n" + name.title() + "'s favorite languages are:")  
    for language in languages:  
        print("\t" + language.title())
```