



## 5: Iterating





# Iteration [ eh-tuh-ray-shuhn ]

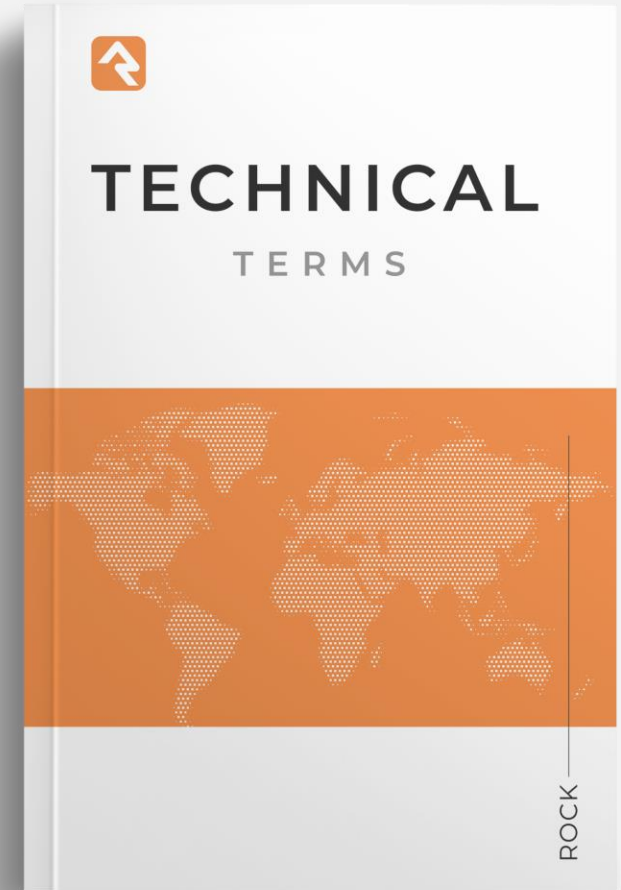
The repetition of a process or utterance.

---



**Demystified:**

Repeating a recipe or sequence of steps for every item in a list.





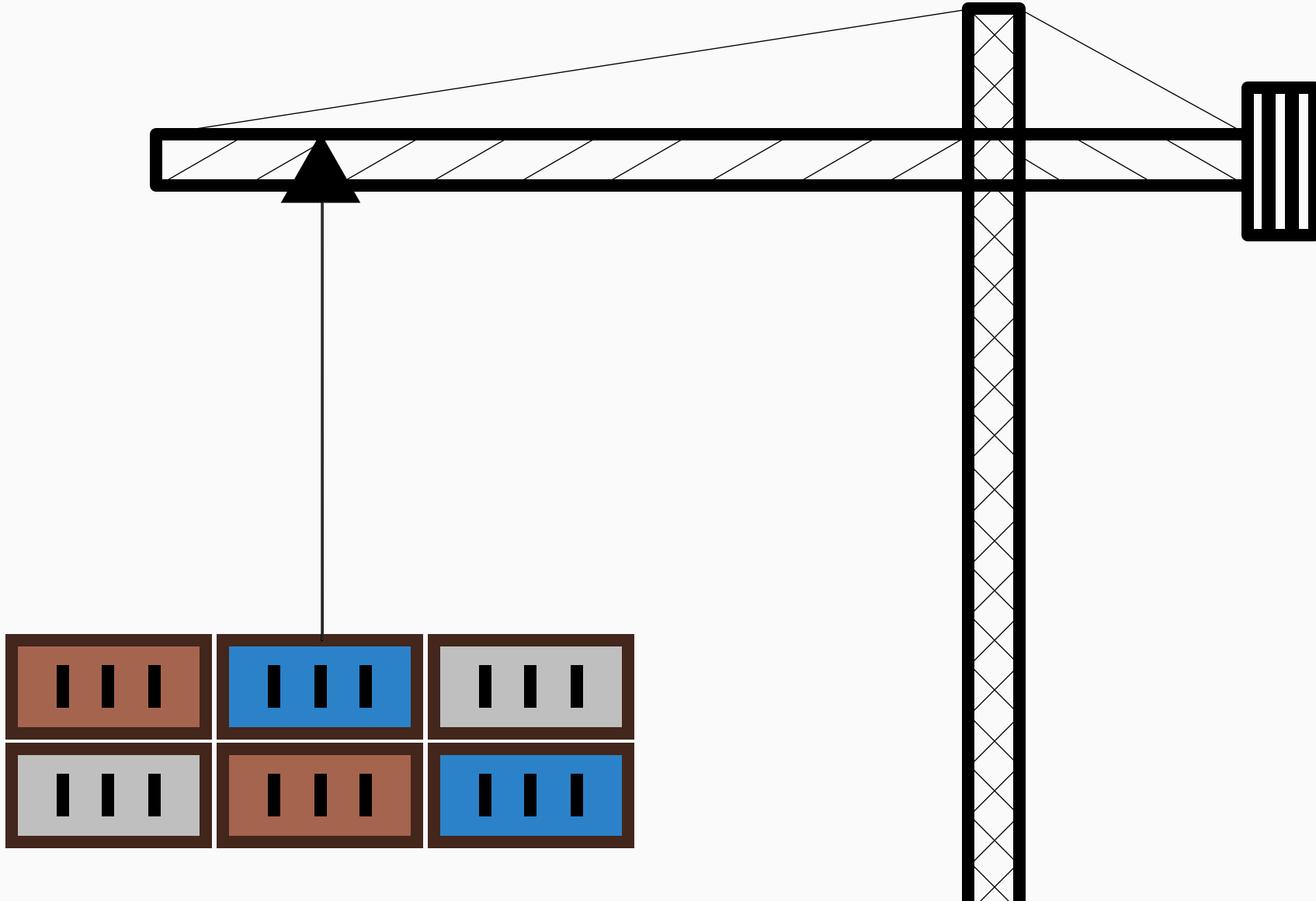
# One By One

Breaking down big,  
repetitive tasks



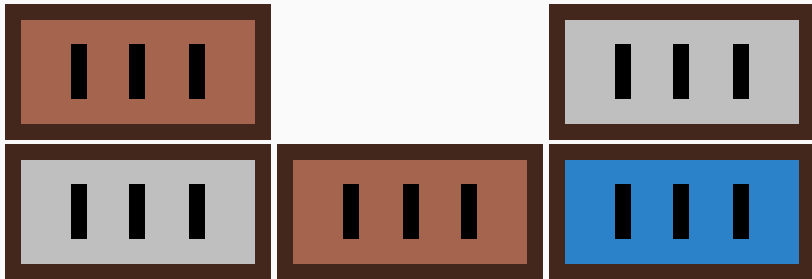
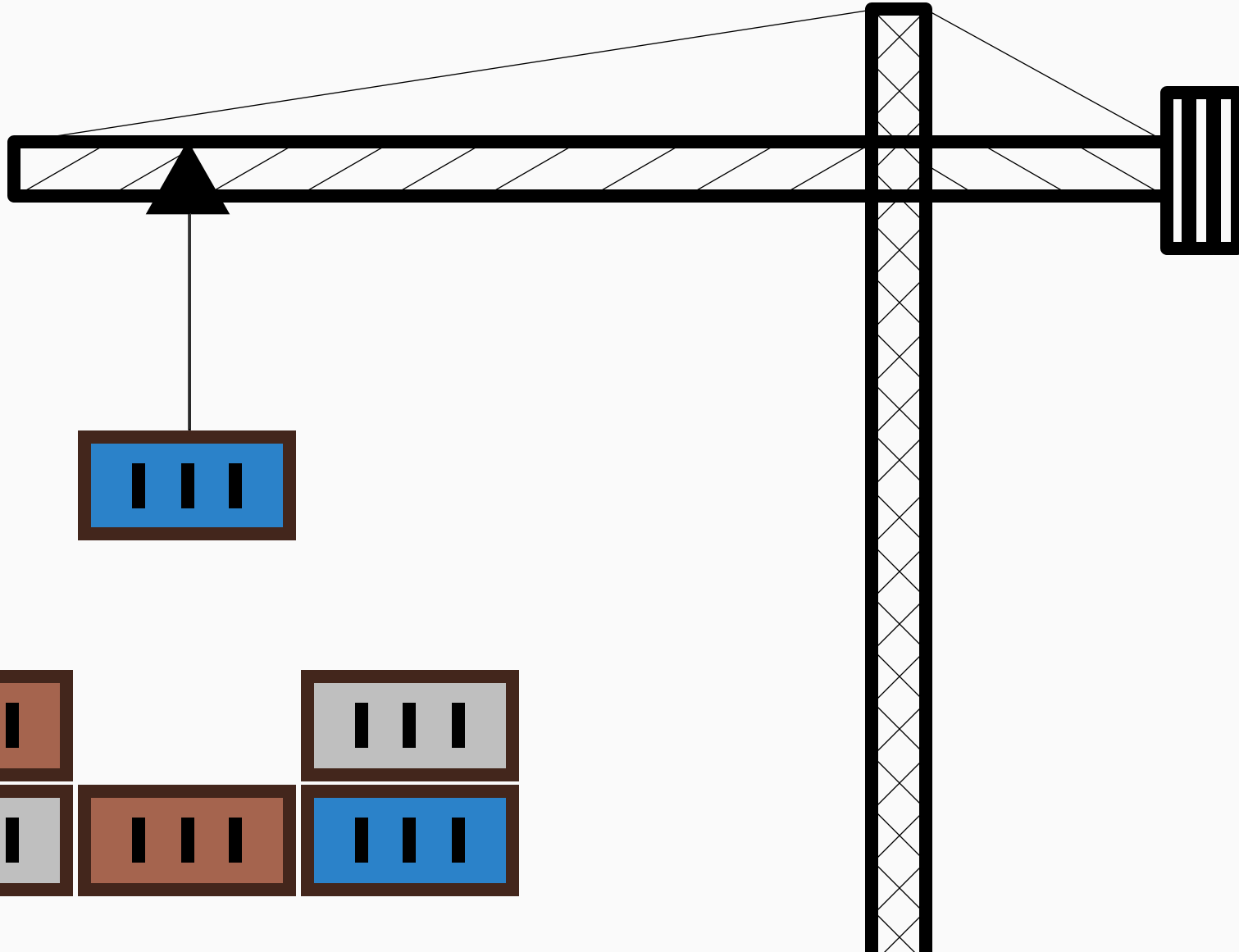


# “For” Loop



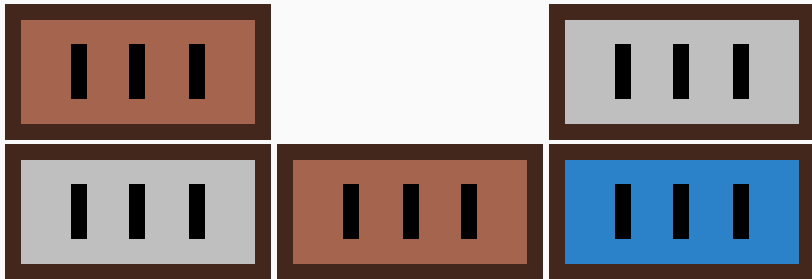
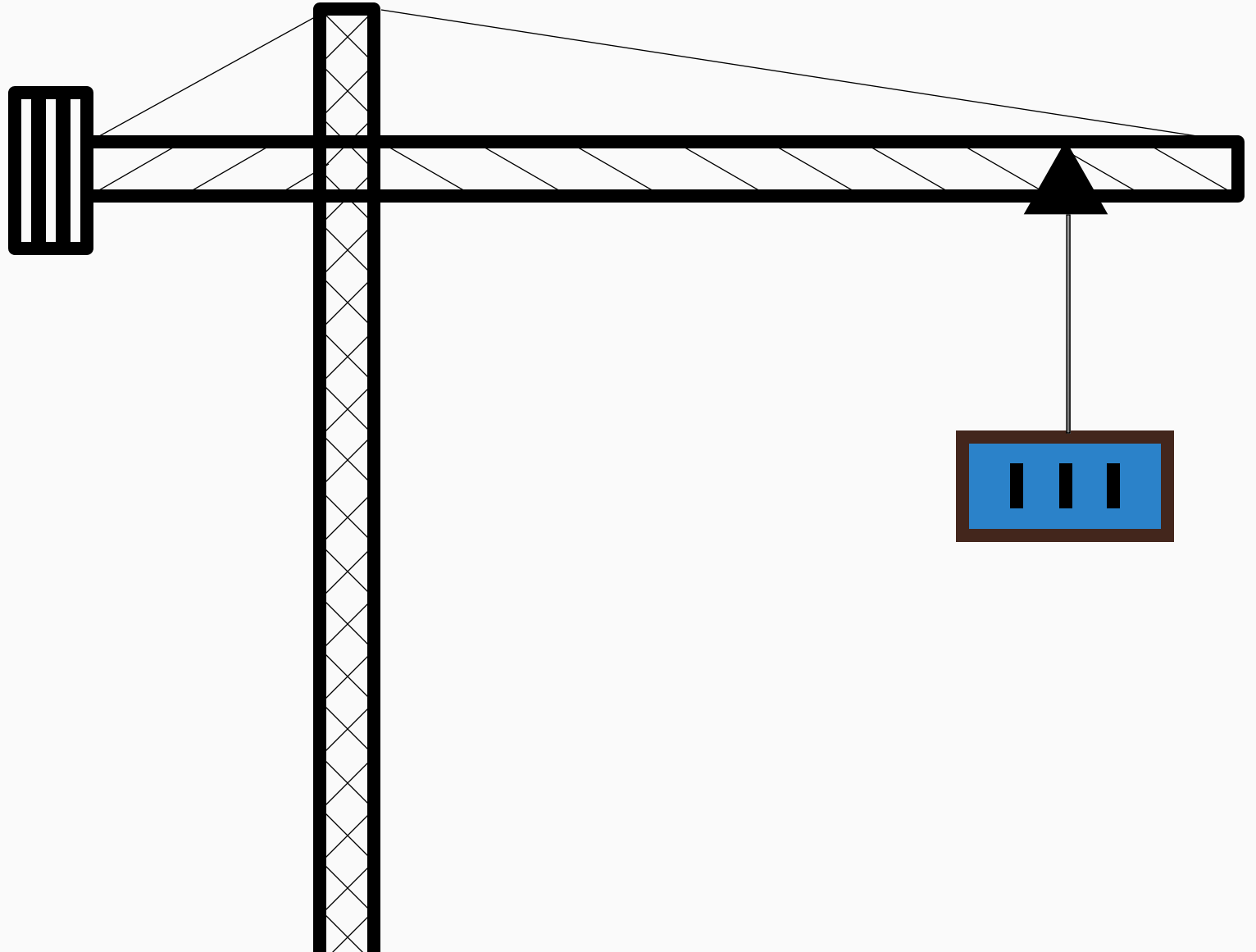


# “For” Loop



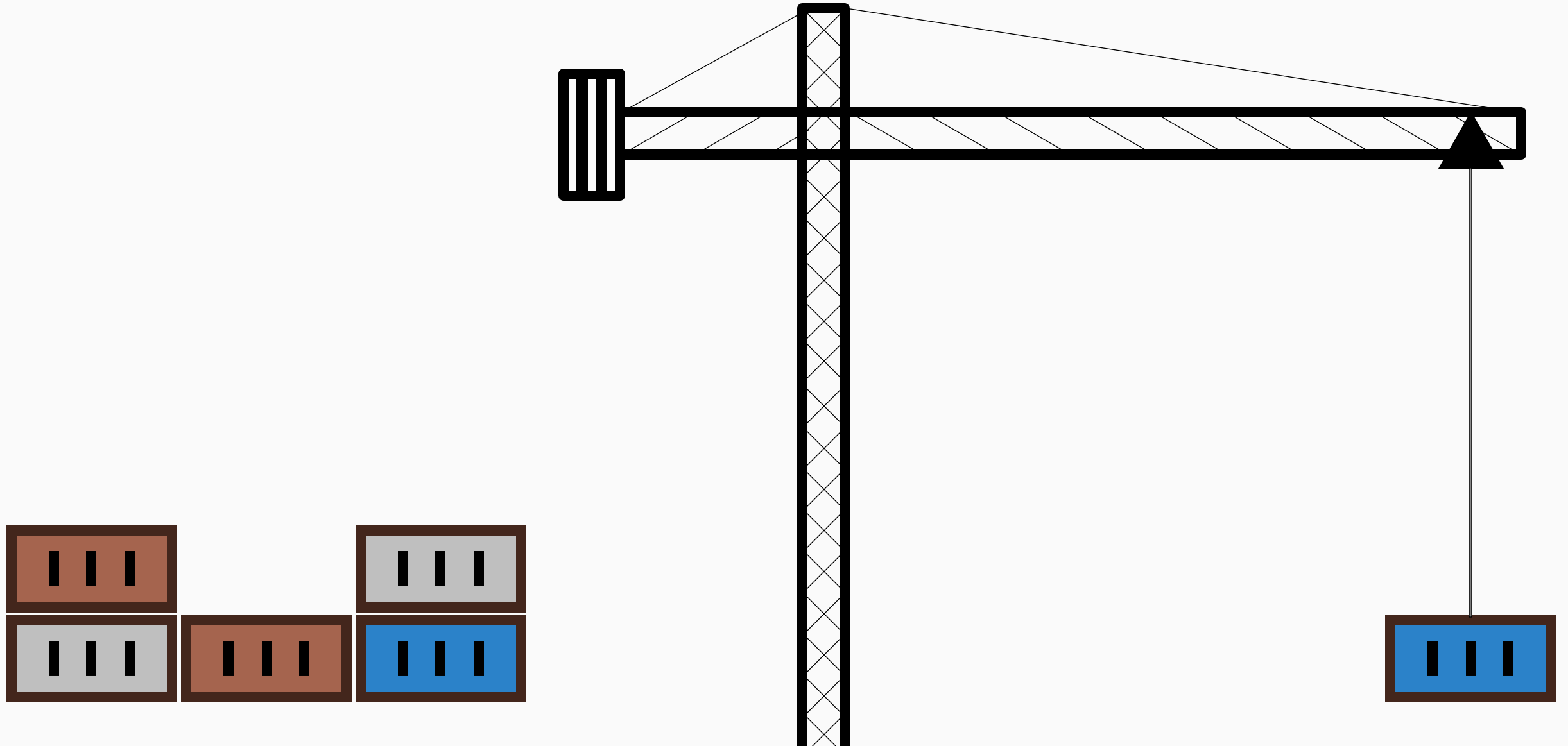


# “For” Loop



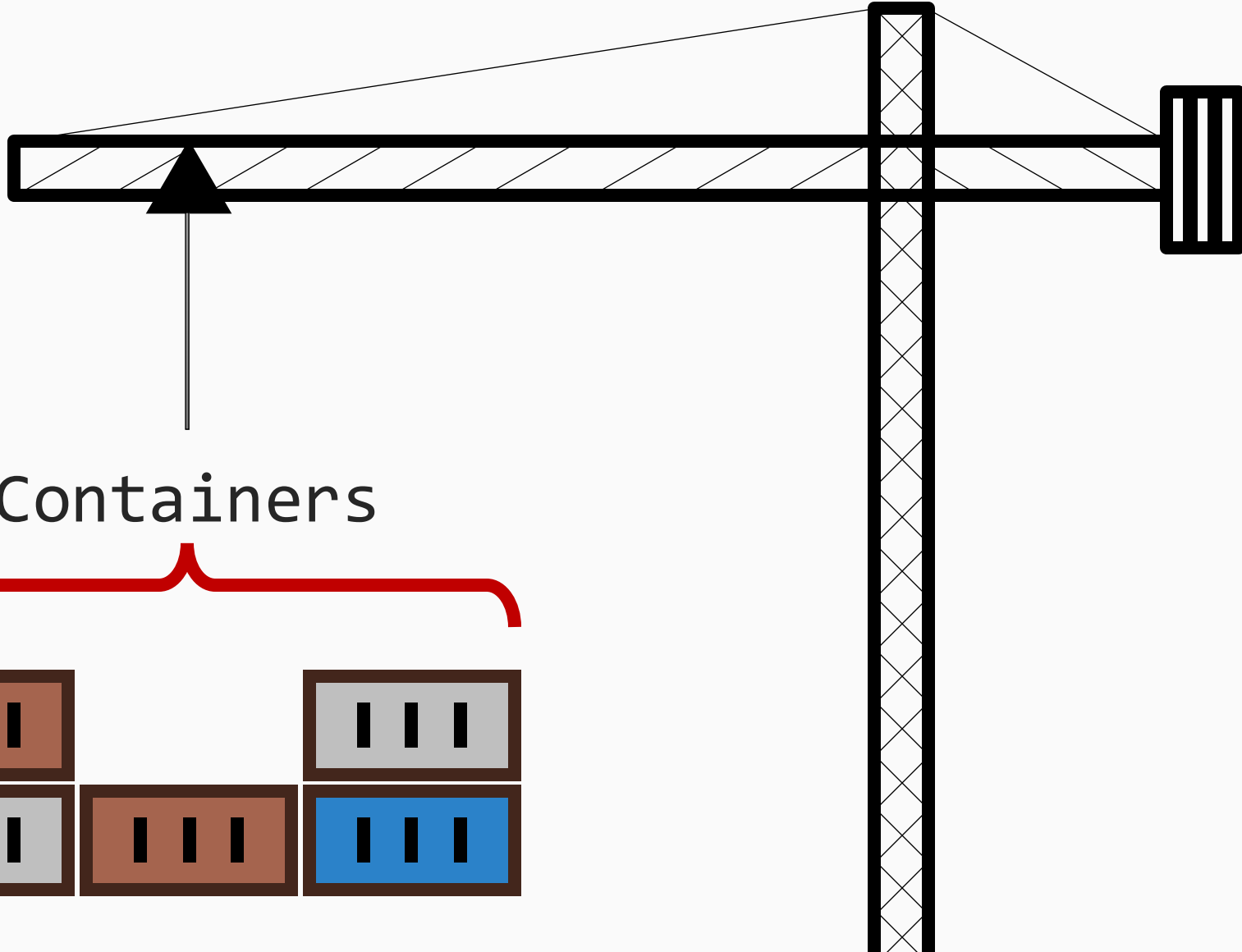


# “For” Loop

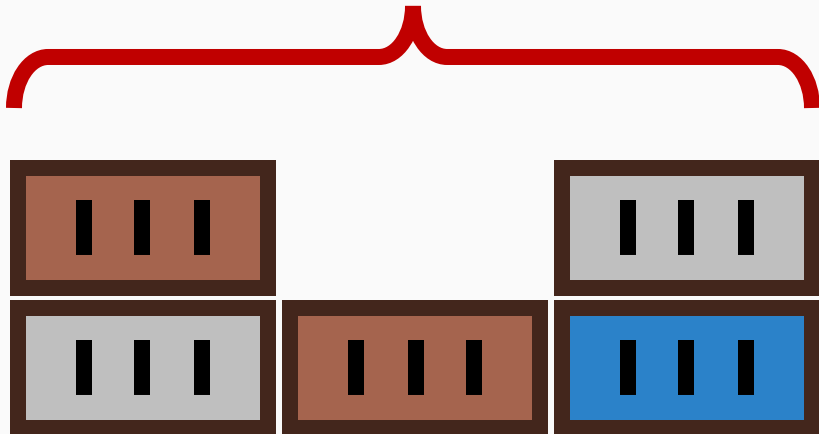




“For” Loop



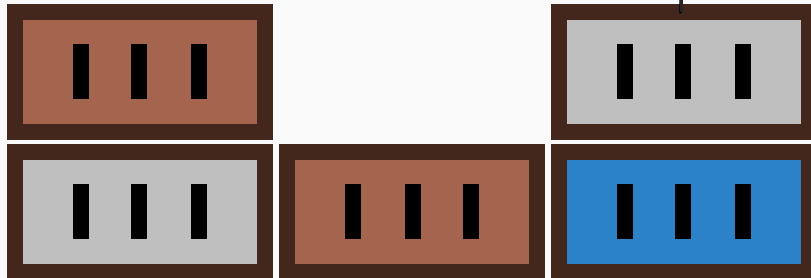
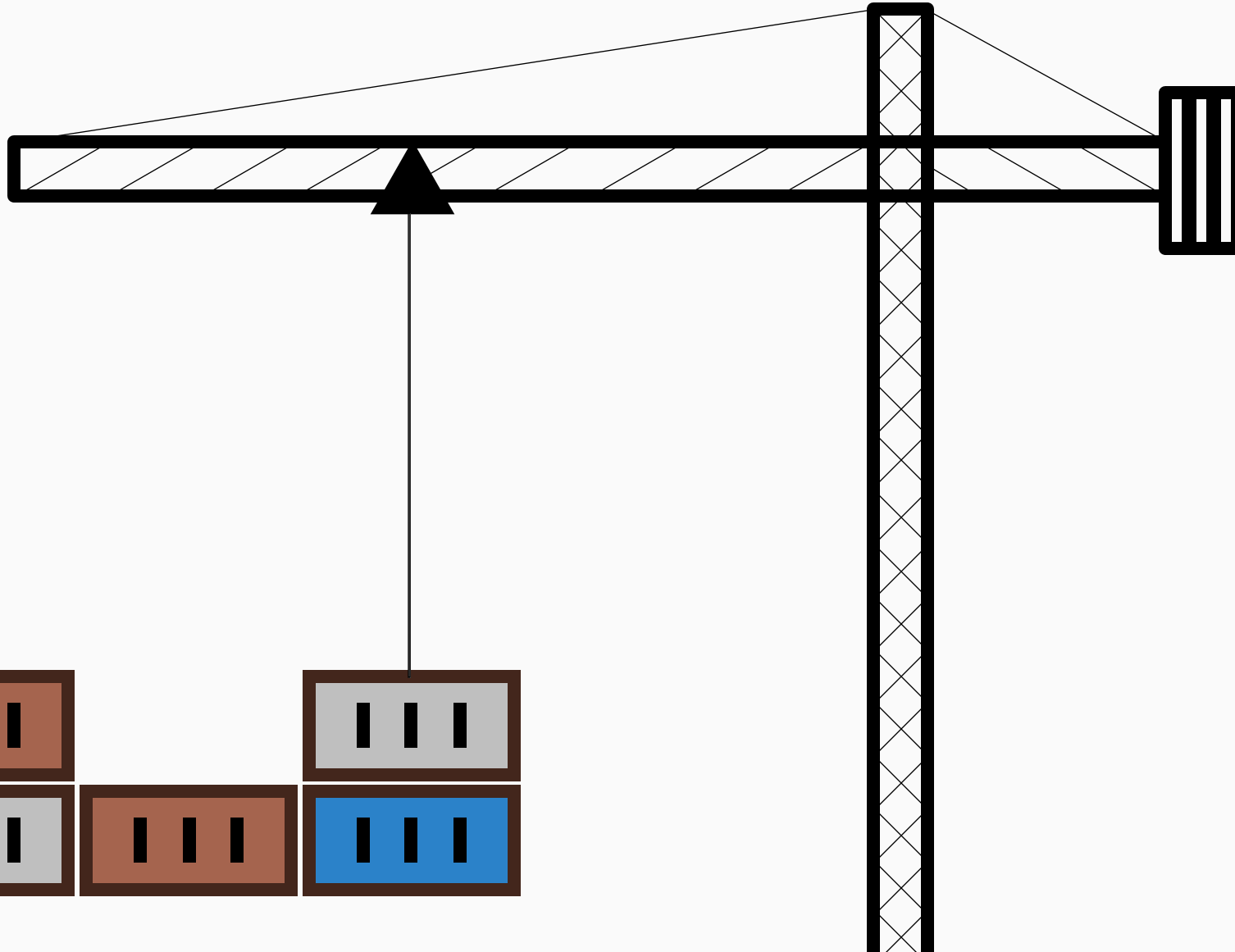
Containers





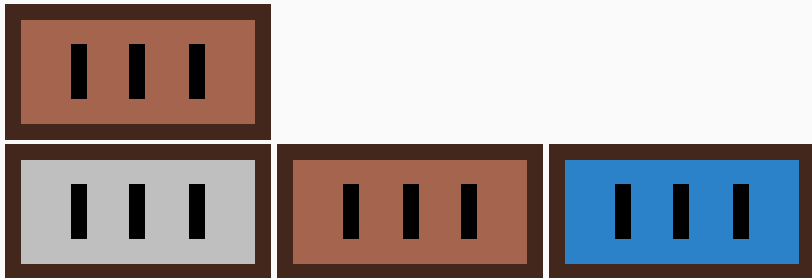
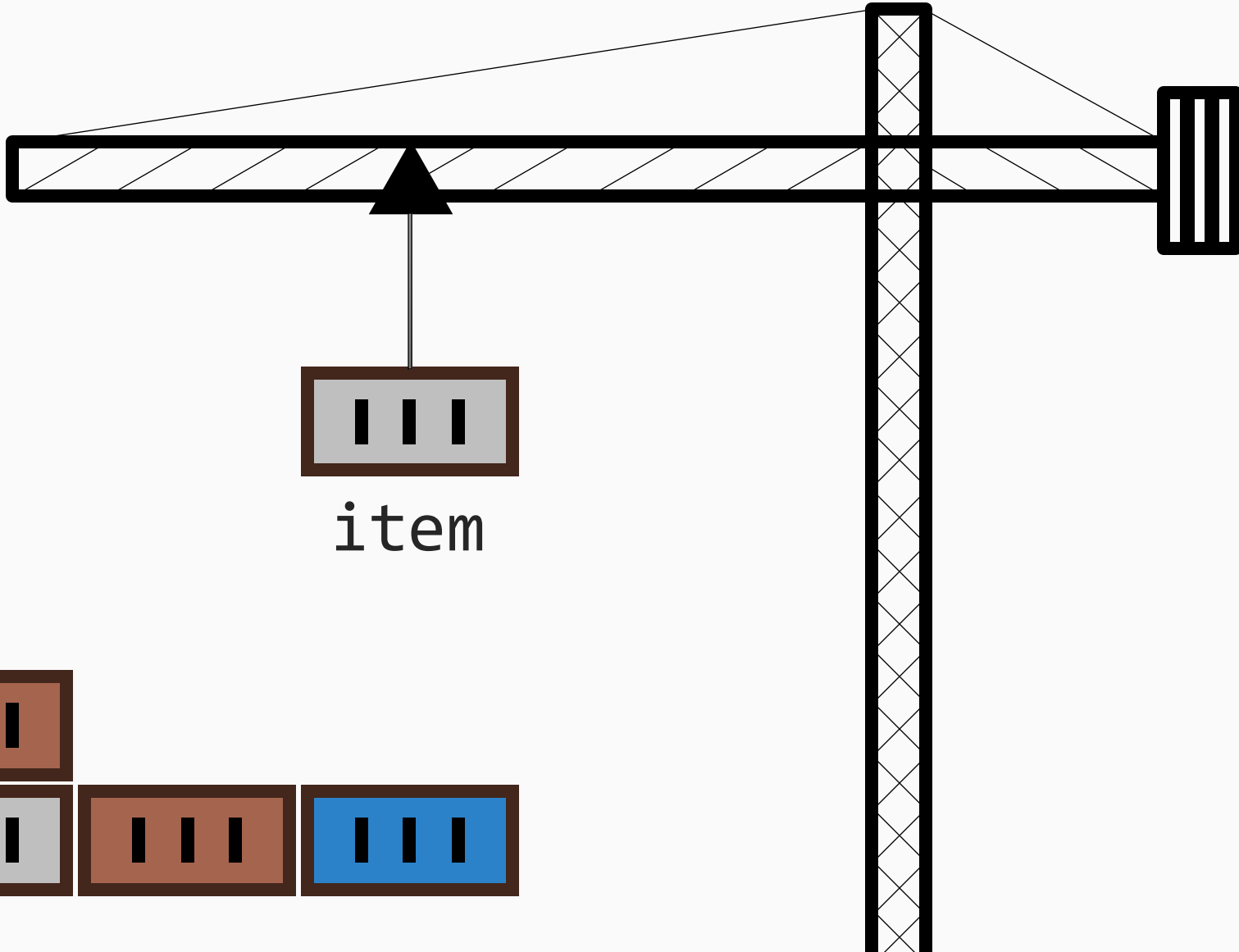


# “For” Loop





# "For" Loop

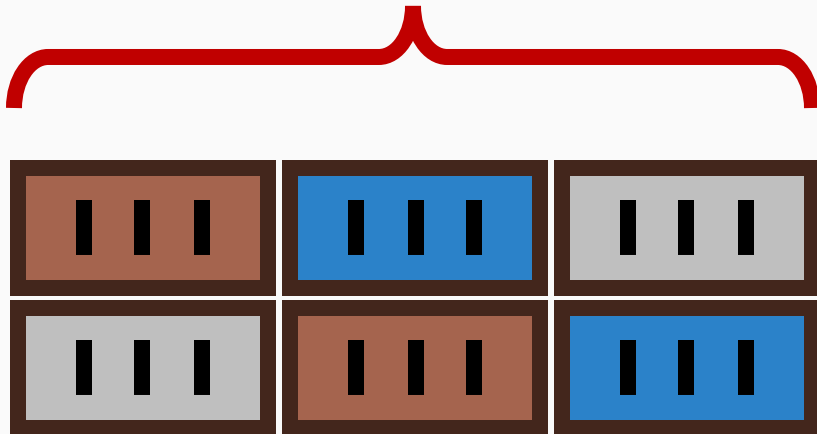




# “For” Loop

```
1  {% for item in Containers %}  
2  
3  {% endfor %}
```

Containers



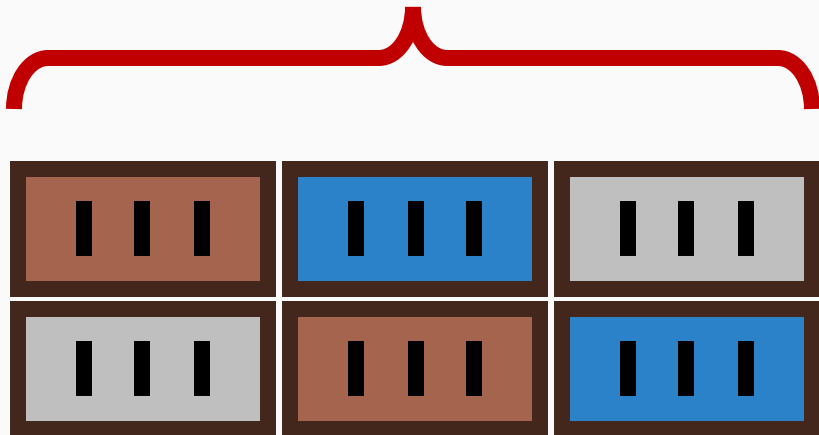
← item



# “For” Loop

```
1  {% for container in Containers %}  
2  
3  {% endfor %}
```

Containers



← container



# Anatomy of a “For” Loop

```
1  {% for item in Containers %}
```

An array (list)



# What's in an Array?

```
{% for item in Containers %}
```

## Array of Primitives

### Containers

Gorilla

Bear

Jellyfish

...



# What's in an Array?

```
{% for item in Containers %}
```

## Array of Objects



**Remember:**

Objects are made up of properties

### Containers

Color: Blue

Destination: AZ

Weight: 30,000kg

...

Color: Gray

Destination: SC

Weight: 19,000kg

...



# Anatomy of a “For” Loop

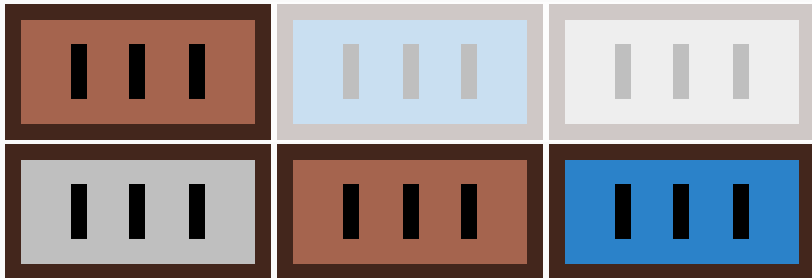
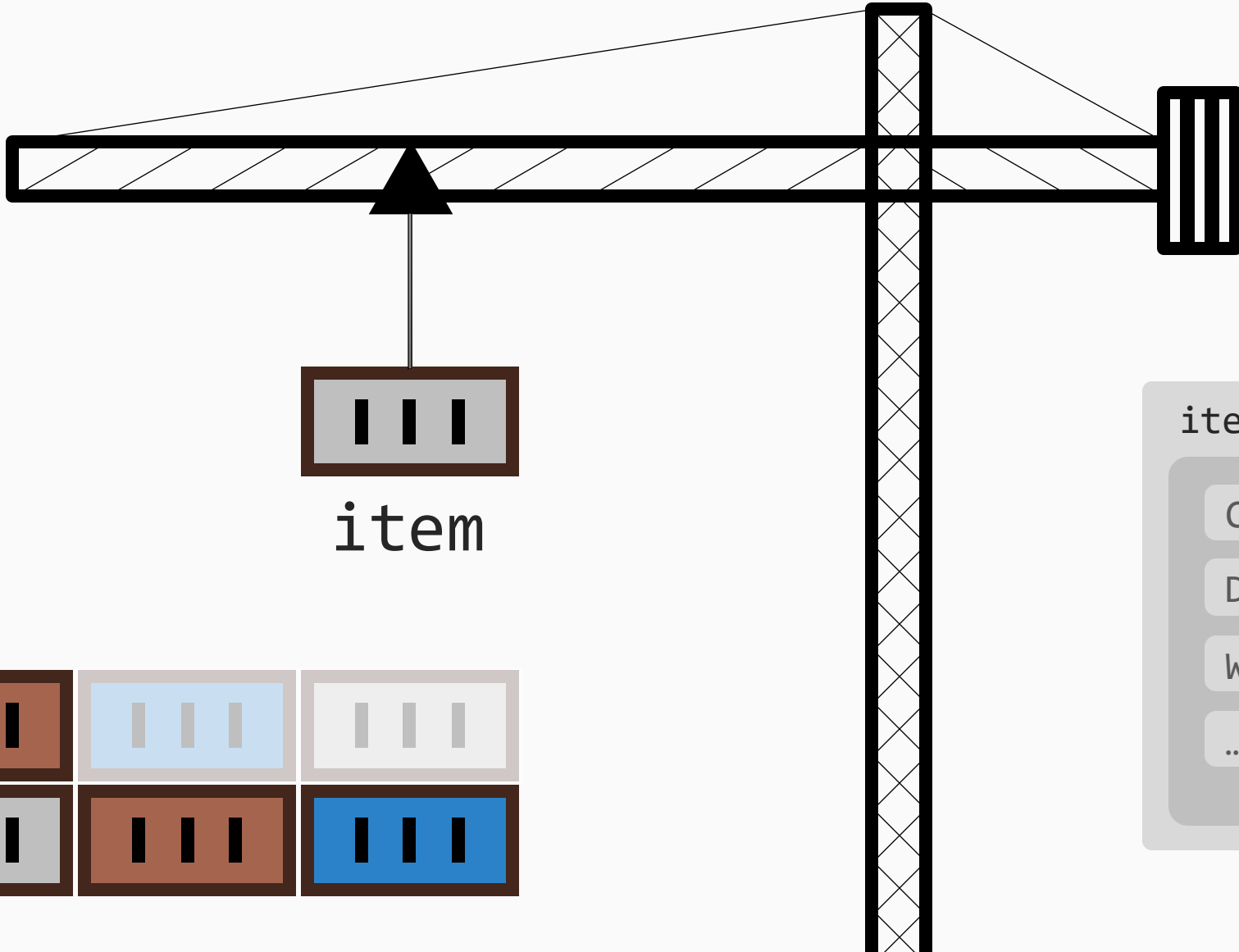
```
1  {% for item in Containers %}
```

**Your variable**





# “For” Loop



item

Color: Gray

Destination: SC

Weight: 19,000kg

...



# Anatomy of a “For” Loop

```
{% for item in Containers %}
```

```
1  {% if item.Color = "Gray" %}  
2    Gray container weighing {{ item.Weight }}  
3  {% endif %}
```

```
{% endfor %}
```



# Anatomy of a “For” Loop

```
1  {% endfor %}
```

This means:

Check if there's anything we haven't gotten out of the array.

1. If there is, repeat the process.
2. If not, go on.



# For

```
1 {% for item in Containers %}  
2   {% if item.Color = "Gray" %}  
3     Gray container weighing {{ item.Weight }}  
4   {% endif %}  
5 {% endfor %}
```



**Gray container weighing 19,000 kg**  
**Gray container weighing 26,050 kg**



# For

```
1 {% for container in Containers %}  
2     {% if container.Color = "Gray" %}  
3         Gray container weighing {{ container.Weight }}  
4     {% endif %}  
5 {% endfor %}
```

Gray container weighing 19,000 kg  
Gray container weighing 26,050 kg



# For

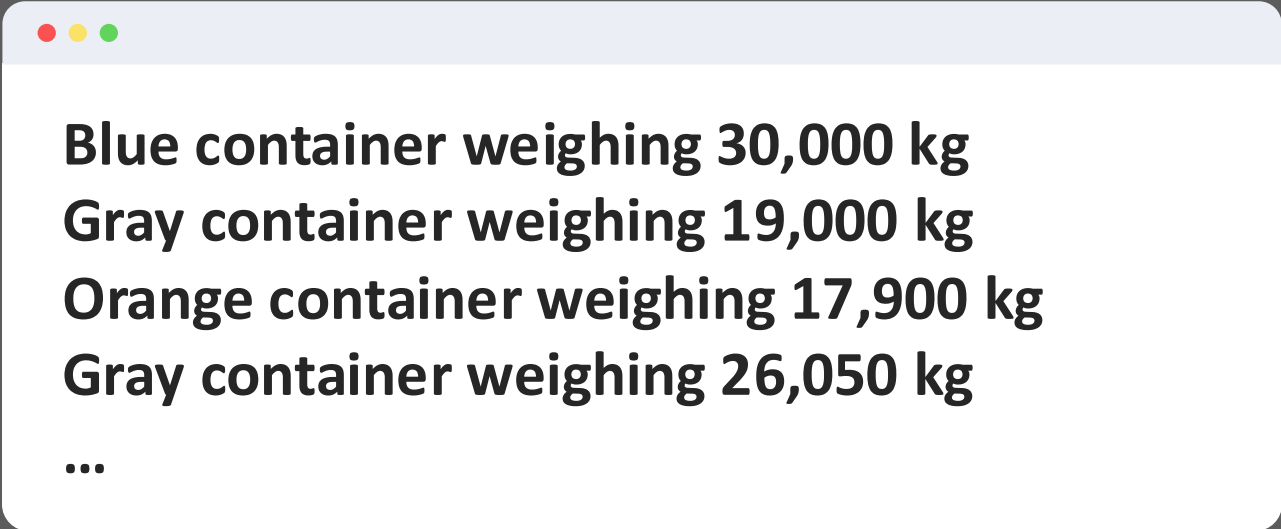
```
1 {% for container in Containers %}
2   {% if container.Color = "Gray" %}
3     Gray container weighing {{ container.Weight }}
4   {% endif %}
5 {% endfor %}
```

Gray container weighing 19,000 kg  
Gray container weighing 26,050 kg



# For

```
1 {% for item in Containers %}  
2   {{ item.Color }} container weighing {{ item.Weight }}  
3 {% endfor %}
```

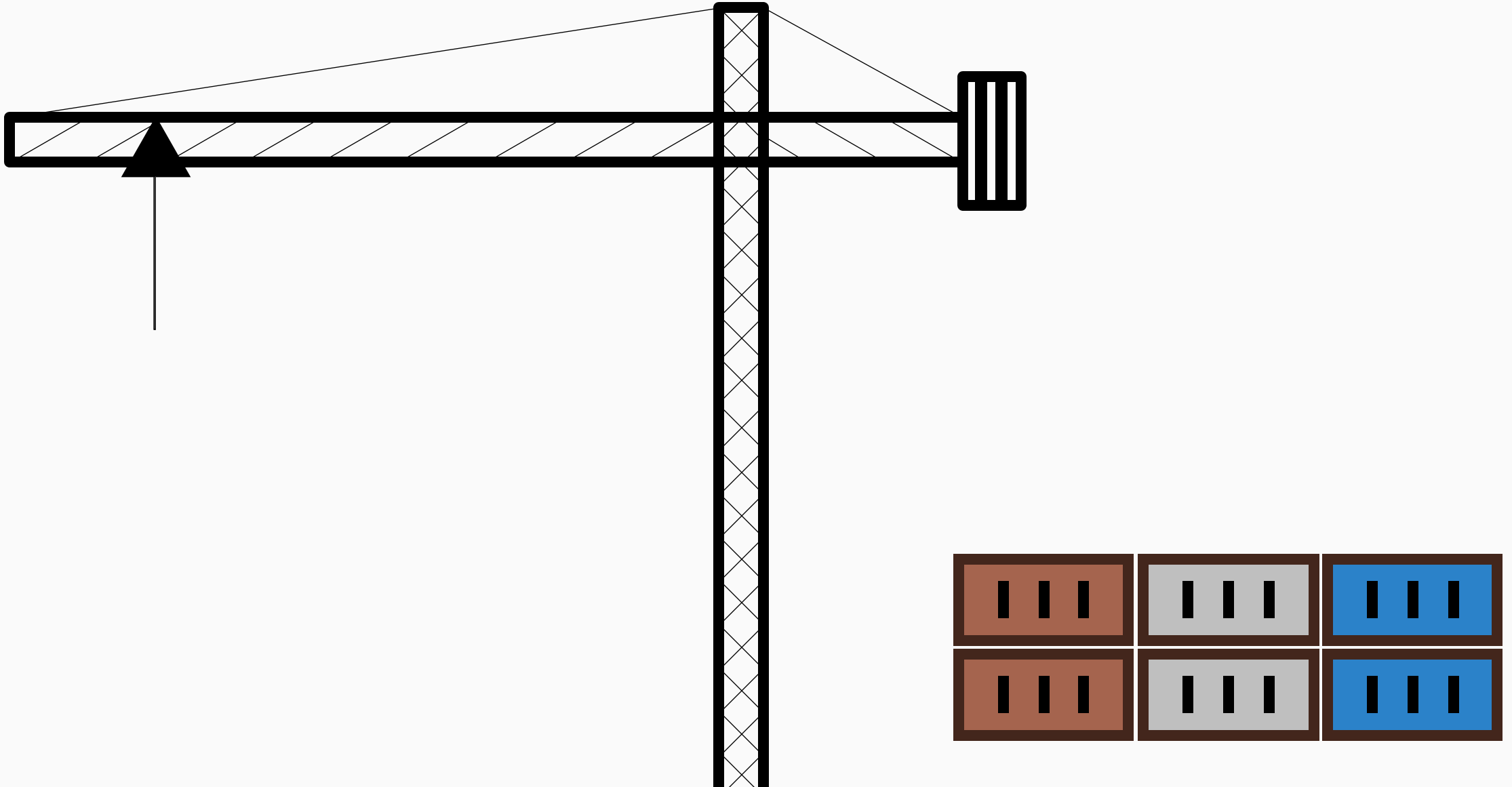


**Blue container weighing 30,000 kg**  
**Gray container weighing 19,000 kg**  
**Orange container weighing 17,900 kg**  
**Gray container weighing 26,050 kg**

...



# End of a For Loop







# For

```
1 <p><strong>Containers loaded: </strong></p>
2 <ul>
3     {% for item in Containers %}
4         <li>{{ item.Color }} container weighing {{ item.Weight }}</li>
5     {% endfor %}
6 </ul>
7 <p><strong>End of list</strong></p>
```

## Containers loaded:

- Blue container weighing 30,000 kg
- Gray container weighing 19,000 kg
- Orange container weighing 17,900 kg
- Gray container weighing 26,050 kg
- Orange container weighing 31,500 kg
- Blue container weighing 21,000 kg

**End of list**




# For






```
1 <p><strong>Containers loaded: </strong></p>
2 <ul>
3     {% for item in Containers %}
4         <li>{{ item.Color }} container weighing {{ item.Weight }}</li>
5     {% endfor %}
6 </ul>
7 <p><strong>End of list</strong></p>
```






```
1 <p><strong>Containers loaded: </strong></p>
2 <ul>
3     <li>Blue container weighing 30,000 kg</li>
4     <li>Gray container weighing 19,000 kg</li>
5     <li>Orange container weighing 17,900 kg</li>
6     <li>Gray container weighing 26,050 kg</li>
7     <li>Orange container weighing 31,500 kg</li>
8     <li>Blue container weighing 21,000 kg</li>
9 </ul>
10 <p><strong>End of list</strong></p>
```



# Campuses










## Model Map


[Home](#) > [Power Tools](#) > [Model Map](#)


### Model Map


  
CMS


  
Communication


  
Core


  
CRM


  
Engagement


  
Event


  
Finance


  
Group

  
Meta

  
Prayer

  
Reporting


  
Web Farm

  
Workflow

### Core Models

[Asset Storage Provider](#)  
[Attribute](#)

### Model Details

Filter Options 

[Campus](#)

Show: ☐ Methods



# Campuses

## Key

- A required field.
- A property on the database.
- Not mapped to the database. These fields are computed and are only available in the object.
- ⚡ These fields are available where Lava is supported.
- ⊘ These methods or fields are obsolete and should not be used.

## Item

|                                     |  |
|-------------------------------------|--|
| ■ LeaderPersonAlias ⚡               | Gets or sets the <a href="#">Person</a> entity that is associated with the leader of the campus. |
| ■ LeaderPersonAliasId ⚡             | Gets or sets the Id of the <a href="#">Person</a> that is the leader of the campus.              |
| ■ Location ⚡                        | Gets or sets the <a href="#">Location</a> entity that is associated with this campus.            |
| ■ LocationId ⚡                      | Gets or sets the Id of the <a href="#">Location</a> that is associated with this campus.         |
| ModifiedAuditValuesAlreadyUpdated ⚡ |  |
| ■ ModifiedByPersonAlias             |  |
| ■ ModifiedByPersonAliasId ⚡         |  |
| ■ ModifiedByPersonId ⚡              |  |
| ■ ModifiedByPersonName ⚡            |  |
| ■ ModifiedDateTime ⚡                |  |
| ■ Name • ⚡                          | Gets or sets the name of the Campus. This property is required.                                  |
| ■ Order ⚡                           | Gets or sets the order.  |



# Campuses

Search ▾

## Campuses

[Home](#) > [General Settings](#) > [Campuses](#)

### Campus List

|   | Name         | Short Code | Phone Number | Campus Leader | Campus Type | Campus Status | Active |
|---|--------------|------------|--------------|---------------|-------------|---------------|--------|
| ≡ | Avondale     | AVO        |              |               | Physical    | Open          | ✓ ×    |
| ≡ | Black Canyon | BCC        |              |               | Physical    | Open          | ✓ ×    |
| ≡ | Carefree     | CAR        |              |               | Physical    | Open          | ✓ ×    |

505005,000

3 Campuses



# For

```
1 <ul>
2   {% for campus in Campuses %}
3     <li>
4       <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
5     </li>
6   {% endfor %}
7 </ul>
```

- [Avondale Campus](#)
- [Black Canyon Campus](#)
- [Carefree Campus](#)



# Reversed

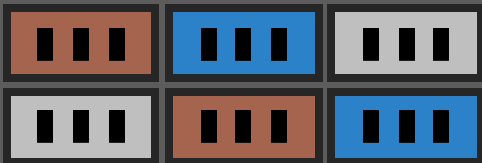
```
1 <ul>
2   {% for campus in Campuses reversed %}
3     <li>
4       <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
5     </li>
6   {% endfor %}
7 </ul>
```

- [Carefree Campus](#)
- [Black Canyon Campus](#)
- [Avondale Campus](#)



# Limit

```
1 <ul>
2   {% for campus in Campuses limit:2 %}
3     <li>
4       <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
5     </li>
6   {% endfor %}
7 </ul>
```



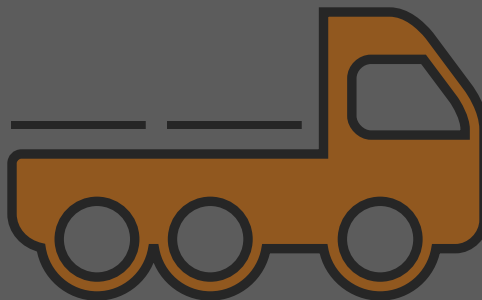
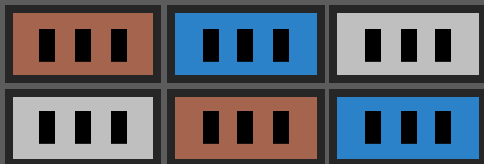
- [Avondale Campus](#)
- [Black Canyon Campus](#)





# Limit

```
1 <ul>
2   {% for campus in Campuses limit:2 %}
3     <li>
4       <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
5     </li>
6   {% endfor %}
7 </ul>
```

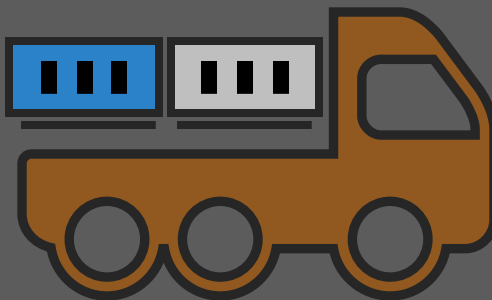
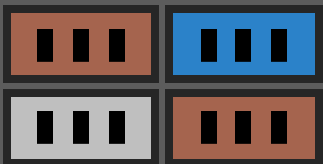


- [Avondale Campus](#)
- [Black Canyon Campus](#)



# Limit

```
1 <ul>
2   {% for campus in Campuses limit:2 %}
3     <li>
4       <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
5     </li>
6   {% endfor %}
7 </ul>
```



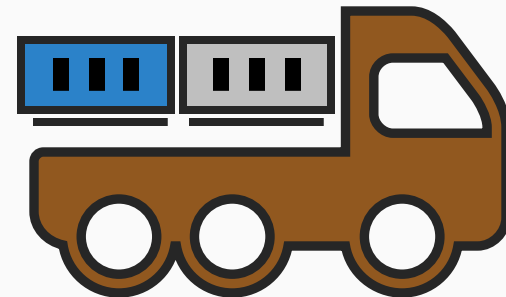
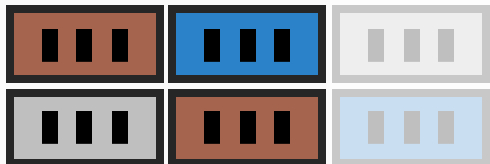
- [Avondale Campus](#)
- [Black Canyon Campus](#)



# Limit

Limit doesn't change the list of what's available.

Limit changes how many times the loop runs.





# Offset

```
1 <ul>
2   {% for campus in Campuses offset:1 %}
3     <li>
4       <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
5     </li>
6   {% endfor %}
7 </ul>
```

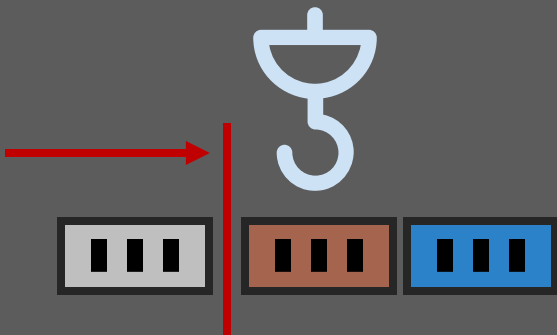


- [Black Canyon Campus](#)
- [Carefree Campus](#)



# Offset

```
1 <ul>
2   {% for campus in Campuses offset:1 %}
3     <li>
4       <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
5     </li>
6   {% endfor %}
7 </ul>
```

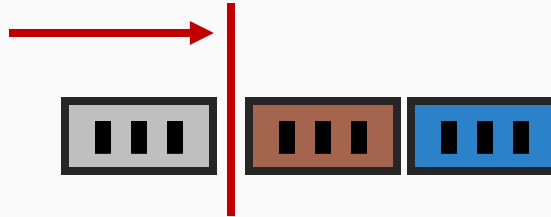


- [Black Canyon Campus](#)
- [Carefree Campus](#)



# Offset

Offset skips items in the array, to change the starting point of the loop





# Offset with Limit

```
1 <ul>
2   {% for campus in Campuses offset:2 limit:2 %}
3     <li>
4       <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
5     </li>
6   {% endfor %}
7 </ul>
```

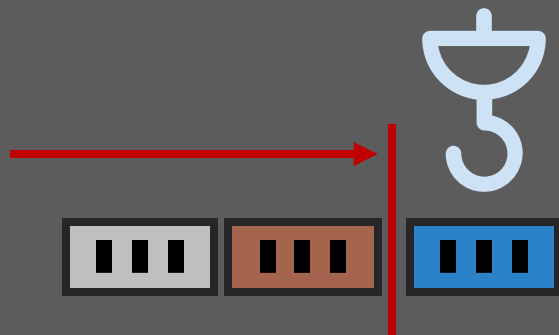


- [Carefree Campus](#)



# Offset with Limit

```
1 <ul>
2   {% for campus in Campuses offset:2 limit:2 %}
3     <li>
4       <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
5     </li>
6   {% endfor %}
7 </ul>
```



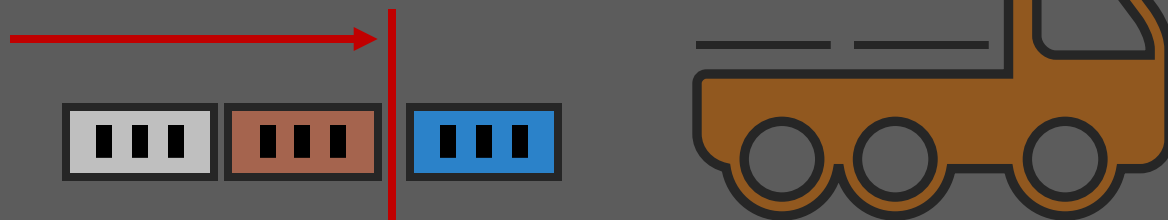
- [Carefree Campus](#)





# Offset with Limit

```
1 <ul>
2   {% for campus in Campuses offset:2 limit:2 %}
3     <li>
4       <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
5     </li>
6   {% endfor %}
7 </ul>
```

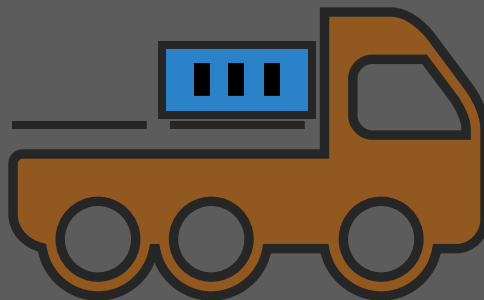
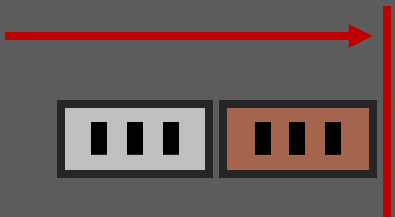


- [Carefree Campus](#)



# Offset with Limit

```
1 <ul>
2   {% for campus in Campuses offset:2 limit:2 %}
3     <li>
4       <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
5     </li>
6   {% endfor %}
7 </ul>
```



- [Carefree Campus](#)



# Else

```
1 {% for campus in Campuses offset:4 limit:2 %}  
2   {{ campus.Name }} Campus  
3 {% else %}  
4   That's all of our campuses!  
5 {% endfor %}
```

That's all of our campuses!



# Flexible Number of Items to Show

You can always use `{% if %}` inside your loop to suppress output.



# Conditionals in For Loops

```
1 <ul>
2   {% for campus in Campuses %}
3     {% if campus.CampusTypeValue.Value == "Physical" %}
4       <li>
5         <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
6       </li>
7     {% endif %}
8   {% endfor %}
9 </ul>
```

- [Black Canyon Campus](#)
- [Carefree Campus](#)



# Conditionals in For Loops

```
1 <p>One of our physical campuses is the
2   {% assign campusShown = 0 %}
3   {% for campus in Campuses %}
4     {% if campus.CampusTypeValue.Value == "Physical" and campusShown == 0 %}
5       {% assign campusShown = 1 %}
6       <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
7     {% endif %}
8   {% endfor %}
9 </p>
```

## First campus:

- Physical?  Needed? 

## Second campus:

- Physical?  Needed? 

## Third campus:

- Physical?  Needed? 

One of our physical campuses is the  
[Black Canyon Campus](#)



# Flexible Number of Items to Show

You can always use `{% if %}` inside your loop to suppress output.



## Deeper Insights

Using If statements to skip items isn't very efficient.  
And... it's difficult to read 😊



# Break

```
1 <p>One of our physical campuses is the
2   {% for campus in Campuses %}
3     {% if campus.CampusTypeValue.Value == "Physical" %}
4       <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>
5       {% break %}
6     {% endif %}
7   {% endfor %}
8 </p>
```



One of our physical campuses is the  
[Black Canyon Campus](#)





# Continue

```
1 <ul>
2   {% for campus in Campuses %}
3     {% if campus.CampusTypeValue.Value != 'Physical' %}{% continue %}{% endif %}
4     <li><a href="{{ campus.Url }}">{{ campus.Name }} Campus</a></li>
5   {% endfor %}
6 </ul>
```

Visit us at our:

- [Black Canyon Campus](#)
- [Carefree Campus](#)



# Mixing in Cycle

Loops within loops





# Cycle

```
1 {% cycle 'John', 'Paul', 'George', 'Ringo' %}  
2 {% cycle 'John', 'Paul', 'George', 'Ringo' %}  
3 {% cycle 'John', 'Paul', 'George', 'Ringo' %}  
4 {% cycle 'John', 'Paul', 'George', 'Ringo' %}  
5 {% cycle 'John', 'Paul', 'George', 'Ringo' %}
```

**John Paul George Ringo John**



# Cycle

```
1 {% for campus in Campuses %}
2   <span style="background-color: {% cycle '#999', '#fff' %};">
3     {{ campus.Name }}<br>
4   </span>
5 {% endfor %}
```



**Avondale Campus**  
**Black Canyon Campus**  
**Carefree Campus**



# Cycle

```
1 {% for campus in Campuses %}
2     <span style="background-color: {% cycle '#999', '#fff' %};">
3         {{ campus.Name }}<br>
4     </span>
5 {% endfor %}
```

```
1 <span style="background-color: #999;">Avondale Campus</span>
2 <span style="background-color: #fff;">Black Canyon Campus</span>
3 <span style="background-color: #999;">Carefree Campus</span>
```



# Cycle

```
1 {% for campus in Campuses %}
2     <span style="color: {% cycle 'red', 'green', 'blue', 'orange' %};">
3         {{ campus.Name }}<br>
4     </span>
5 {% endfor %}
```

**Avondale Campus**

**Black Canyon Campus**

**Carefree Campus**



# Cycle

```
1 {% for campus in Campuses %}
2   <span style="
3     color: {% cycle 'text': 'red', 'green', 'blue', 'orange' %};
4     background-color: {% cycle 'bg': '#999', '#fff' %}
5   ">
6     {{ campus.Name }}<br>
7   </span>
8 {% endfor %}
```

## Additional Options

1. **Key:** An identifier to keep one list separate from another.
2. **Values:** The values to cycle through.

Avondale Campus

Black Canyon Campus

Carefree Campus





# Going Meta

Getting information about the `{% for %}` loop itself







# Loop Properties

```
1 {% for campus in Campuses limit:2 %}  
2   {{ forloop.index }}: <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>  
3 {% endfor %}
```

- 
- 1: [Avondale Campus](#)
  - 2: [Black Canyon Campus](#)



# Loop Properties

```
1 {% for campus in Campuses limit:2 %}  
2   {{ forloop.rindex }}: <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>  
3 {% endfor %}
```

2: [Avondale Campus](#)  
1: [Black Canyon Campus](#)



# Loop Properties

```
1 {% for campus in Campuses limit:2 %}  
2   {{ forloop.index }}/{{ forloop.length }}:  
3   <a href="{{ campus.Url }}">{{ campus.Name }} Campus</a>  
4 {% endfor %}
```

1/2: [Avondale Campus](#)  
2/2: [Black Canyon Campus](#)



# Other Variations

```
{{ forloop.index }}
```

VS

```
{{ forloop.index0 }}
```

```
{{ forloop.rindex }}
```

VS

```
{{ forloop.rindex0 }}
```



## Never Fear!

If you need these variations, you'll know it. For now, it's just good to know they exist.



# Loop Properties

```
1 {% for campus in Campuses %}  
2   <span {% if forloop.first %}style="background-color: yellow;"{% endif %}>  
3     {{ campus.Name }} Campus,  
4   </span>  
5 {% endfor %}
```

**Avondale Campus,** Black Canyon  
Campus, Carefree Campus,



# Loop Properties

```
1 {% for campus in Campuses %}  
2   <span {% if forloop.first %}style="background-color: yellow;"{% endif %}>  
3     {{ campus.Name }} Campus,  
4   </span>  
5 {% endfor %}
```

```
1 <span style="background-color: yellow;">Avondale Campus, </span>  
2 <span>Black Canyon Campus, </span>  
3 <span>Carefree Campus, </span>
```



# Loop Properties

```
1 {% for campus in Campuses %}
2   <span {% if forloop.first %}style="background-color: yellow;"{% endif %}>
3     {{ campus.Name }} Campus
4     {% if forloop.last == false %}, {% endif %}
5   </span>
6 {% endfor %}
```



## Take note:

You might be surprised at how often this filter is used!

**Avondale Campus, Black Canyon Campus, Carefree Campus**