In [15]:

```
## numpy is a Python numerical and scientific library module. Standard alias is np
## An alias means we don't need to type out the full name of the module each time we
import numpy as np
```

In [16]:

```
## pandas supports dataset manipulation and simple graphing in Python. Standard alias
import pandas as pd
```

In [17]:

```
## Bokeh enables plots to be made from pandas objects and to be displayed on the web/

from bokeh.io import output_notebook
from bokeh.charts import Scatter, show
```

In [18]:

```
## We're going to create an example dataset, of the kind that will be received from a
## We are creating a dict (dictionary): the program tells Python this is a dict by us
## Programmers may recognise the similarity with Javascript object notation (JSON), a
## This is a time series, so the first list is time in seconds, and the second list i
## The item showing np.NAN is where the device didn't send data for that reading: ver

bitDict = {'secs': [5, 10, 15, 20, 25, 30, 35, 40], 'tempC':[28, 29, 31, 32, 32, np.N
```

In [19]:

```
## The dictionary stores data in a structured way, in what is called "key pairs": pro
bitDict['secs']
```

Out[19]:

```
[5, 10, 15, 20, 25, 30, 35, 40]
```

In [20]:

```
## To manipulate data we need to turn the dict into a pandas object.
## pd is the alias we used for Pandas, and a Series is a particular pandas data objec

bitFrame=pd.DataFrame(bitDict)
```

In [21]:

```
## When passing a dictionary into pandas it takes the keys as the column names and as
bitFrame
```

Out[21]:

	secs	tempC
0	5	28.0
1	10	29.0
2	15	31.0
3	20	32.0
4	25	32.0
5	30	NaN
6	35	34.0
7	40	35.0

In [22]:

```
## Using the Bokeh Scatter library which we imported earlier, we can create a basic S
p = Scatter(bitFrame)
```

In [23]:

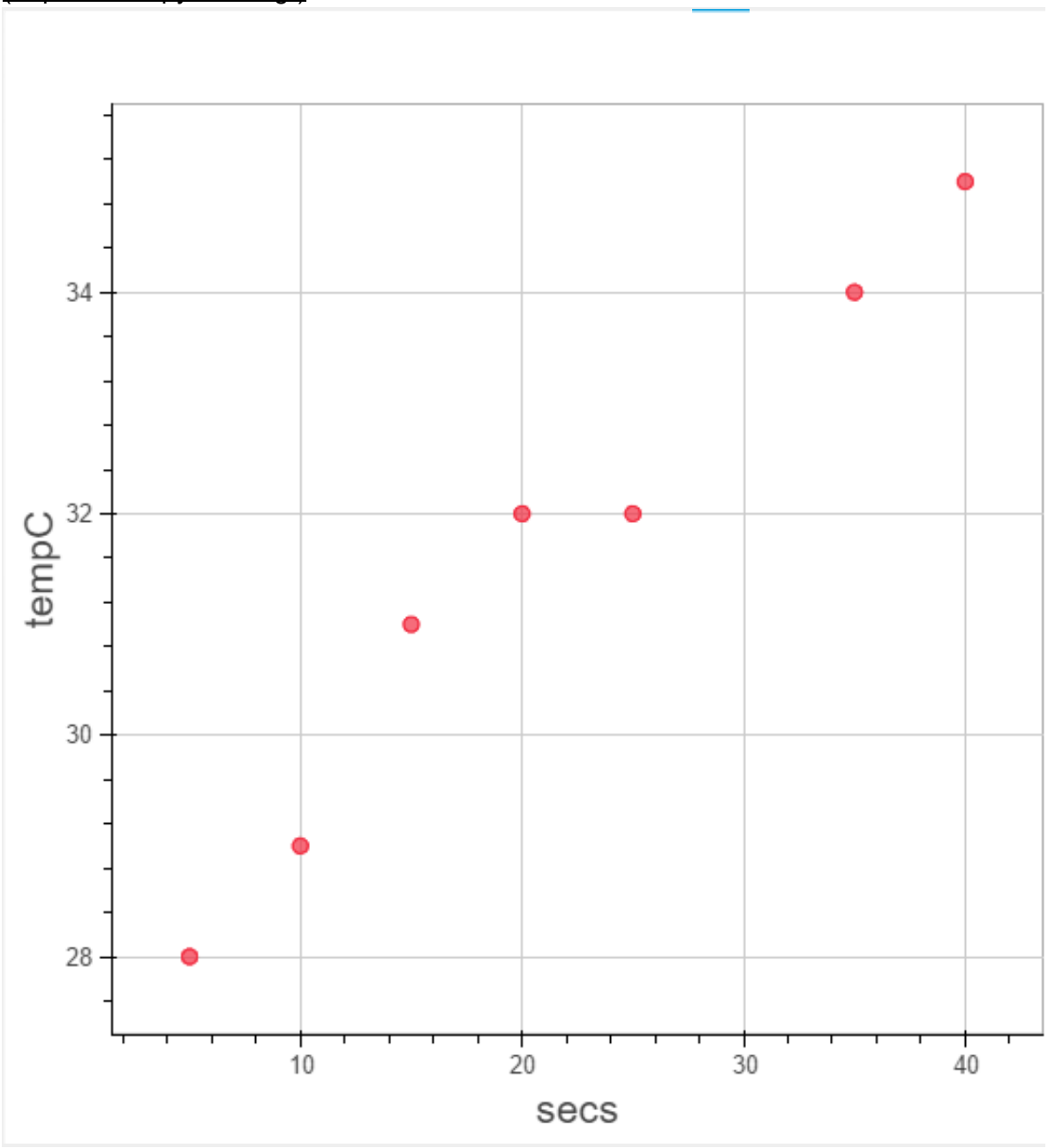
```
## We send the output to this notebook
output_notebook()
```

(http BokehJS successfully loaded

In [24]:

```
## And we create the plot, note that where there is no value, no point is plotted.
show(p)
```

(http://bokeh.pydata.org/)



Out[24]:

<Bokeh Notebook handle for **In[24]**>

In [ ]: