In [2]:
```
import numpy as np
```

In [4]:
```
import matplotlib.pyplot as plt
```

In [11]:
```
%matplotlib inline
```

In [12]:
```
from PIL import Image
```

In [14]:
```
GokumangaToriyama_img = Image.open(r'C:\Users\YASH\Downloads\GokumangaToriyama.png')
#download the image copy the path and the format its available
```

In [15]:
```
GokumangaToriyama_img
```

Out[15]:

In [16]:
```
type(GokumangaToriyama_img)
```

Out[16]: PIL.PngImagePlugin.PngImageFile

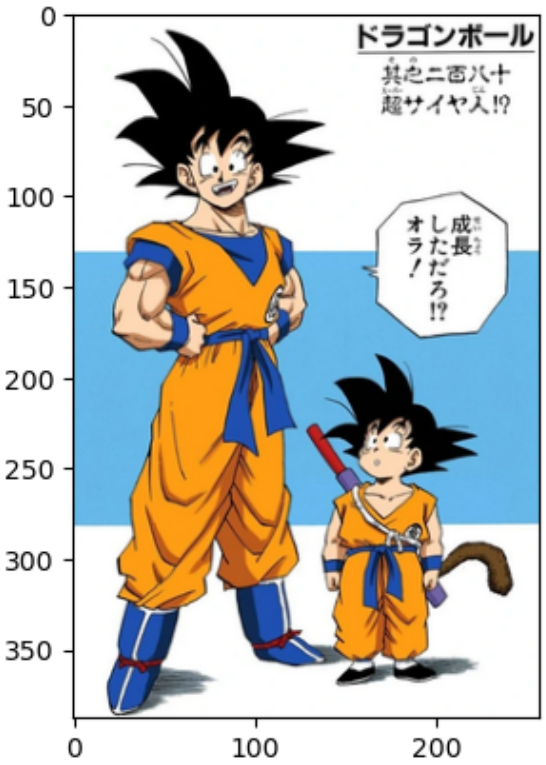
In [17]:
```
GokumangaToriyama_arr=np.asarray(GokumangaToriyama_img)
GokumangaToriyama_arr
#asarray is used to convert image to array
```

Out[17]:
```
array([[[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],

       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],

       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],

       ...,

       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],

       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],
```

```
       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]]], dtype=uint8)
```

In [18]:
```
plt.imshow(GokumangaToriyama_arr)
```

Out[18]:
```
<matplotlib.image.AxesImage at 0x28655087800>
```



In [19]:
```
GokumangaToriyama_arr.shape
```

Out[19]:
```
(388, 257, 3)
```

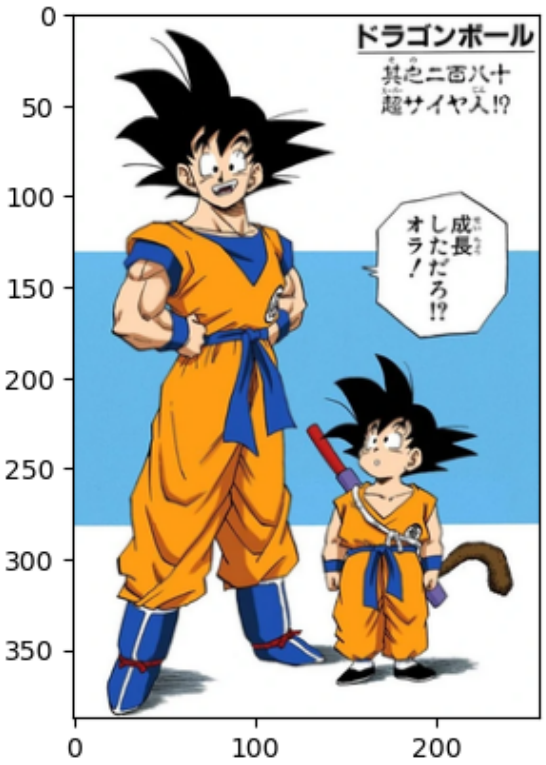
In [20]:
```
GokumangaToriyama_red=GokumangaToriyama_arr.copy()
GokumangaToriyama_red
```

Out[20]:
```
array([[[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],

       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],

       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],

       ...,

       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],

       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],
```

```
       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]]], dtype=uint8)
```

In [21]:
```
plt.imshow(GokumangaToriyama_red)
```

Out[21]:
```
<matplotlib.image.AxesImage at 0x28655141130>
```

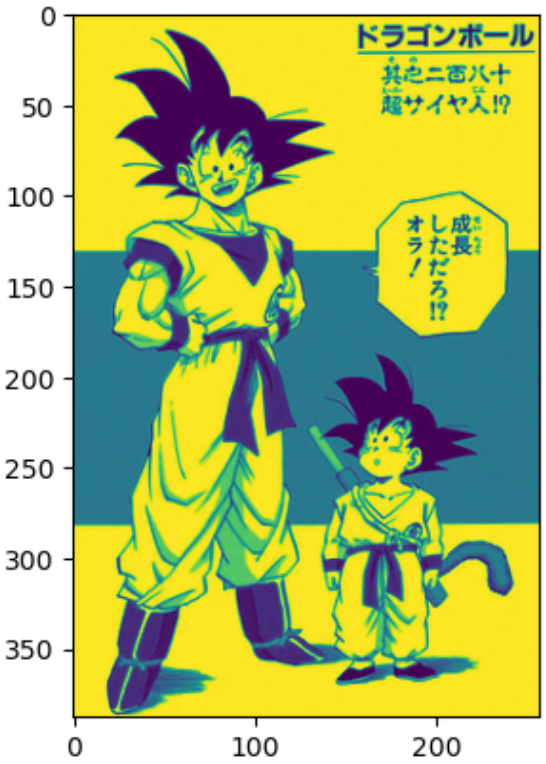


In [24]:
```
GokumangaToriyama_red.shape
```

Out[24]:
```
(388, 257, 3)
```

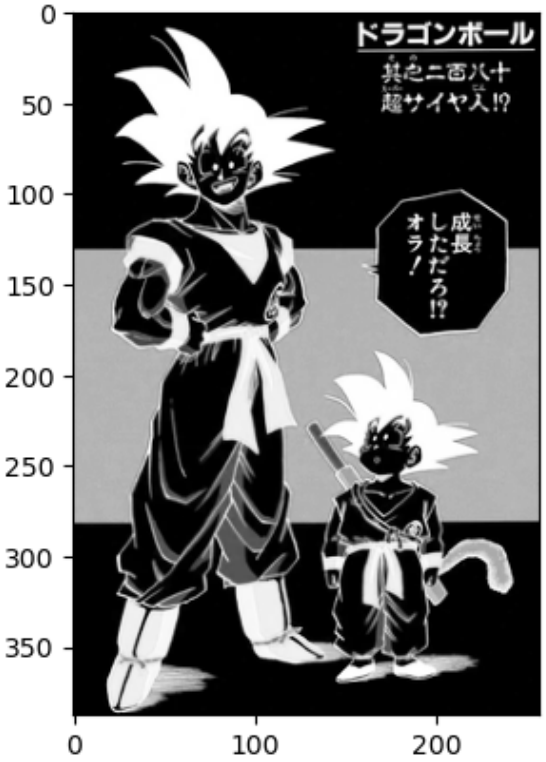
In [25]:
```
plt.imshow(GokumangaToriyama_red[:,:,0])
#as it is a 3d array the last column become zero
```

Out[25]: <matplotlib.image.AxesImage at 0x286550894f0>



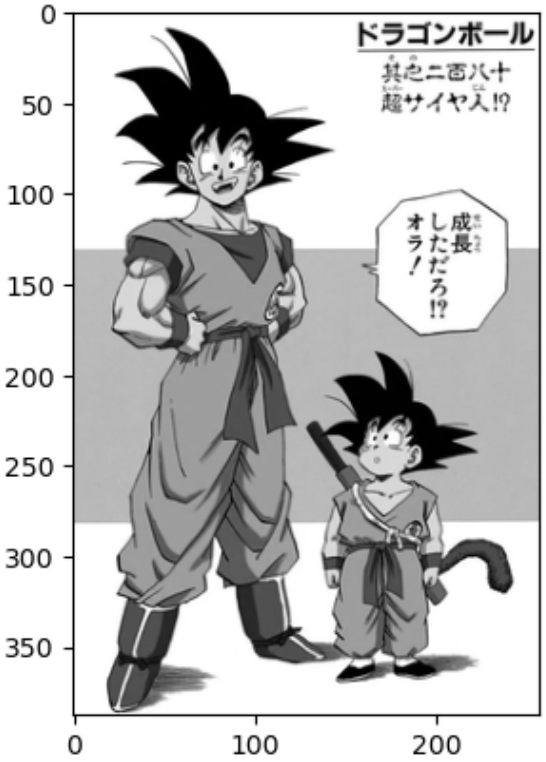
In [26]:
```
plt.imshow(GokumangaToriyama_red[:,:,0], cmap='Greys')
#colour mapping
```

Out[26]: <matplotlib.image.AxesImage at 0x28655166210>



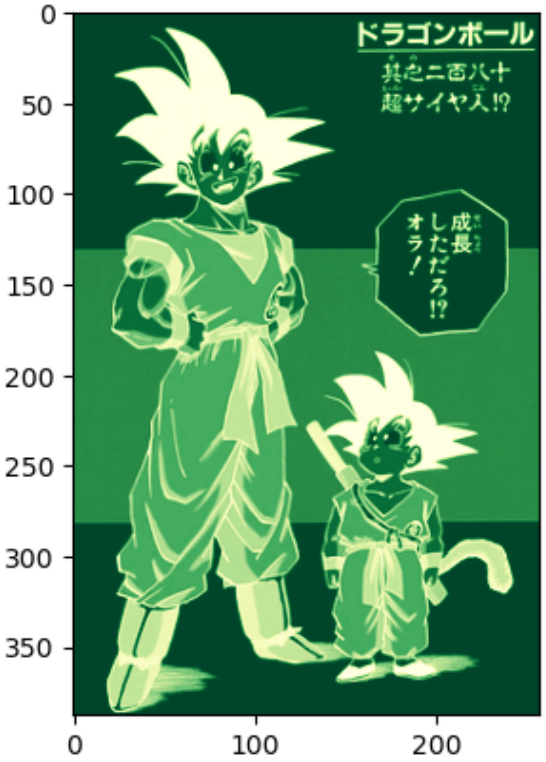
In [27]:
```
plt.imshow(GokumangaToriyama_red[:,:,1], cmap='grey')
```

Out[27]:
```
<matplotlib.image.AxesImage at 0x286552bb4d0>
```



In [28]:
```
plt.imshow(GokumangaToriyama_red[:,:,1], cmap='YlGn')
```

Out[28]:
```
<matplotlib.image.AxesImage at 0x28653093770>
```



In [29]:
```
GokumangaToriyama_red[:,:,0]
```

Out[29]:
```
array([[255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       ...,
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255]], dtype=uint8)
```

In [30]:
```
GokumangaToriyama_red[:,:,1]
```

Out[30]:
```
array([[255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       ...,
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255]], dtype=uint8)
```

In [31]:
```
GokumangaToriyama_red[:,:,2]
```

Out[31]:
```
array([[255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       ...,
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255]], dtype=uint8)
```

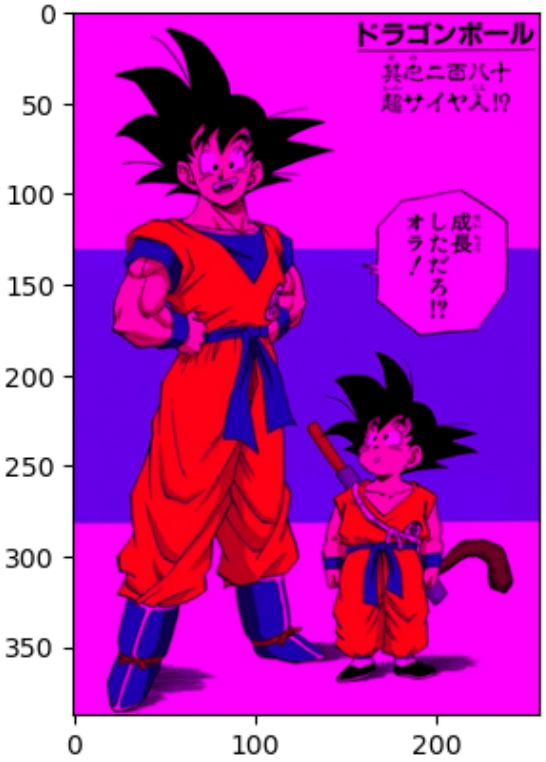
In [32]:
```
GokumangaToriyama_red[:,:,1]=0
```

In [33]:
```
GokumangaToriyama_red[:,:,1]
```

Out[33]:
```
array([[0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       ...,
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0]], dtype=uint8)
```

In [34]:
```
plt.imshow(GokumangaToriyama_red)
```

Out[34]:
```
<matplotlib.image.AxesImage at 0x28655a55280>
```



In [35]:
```
GokumangaToriyama_red[:,:,2]
```

Out[35]:
```
array([[255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       ...,
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255]], dtype=uint8)
```

In [36]:
```
GokumangaToriyama_red[:,:,2]=0
```

In [37]:
```
GokumangaToriyama_red[:,:,2]
```

Out[37]:
```
array([[0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       ...,
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0]], dtype=uint8)
```

In [38]:
```
GokumangaToriyama_arr
```

Out[38]:
```
array([[[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],

       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],

       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],

       ...,

       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],

       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]],
```

```
       [[255, 255, 255],
        [255, 255, 255],
        [255, 255, 255],
        ...,
        [255, 255, 255],
        [255, 255, 255],
        [255, 255, 255]]], dtype=uint8)
```

In [39]:
```
GokumangaToriyama_red
```

Out[39]:
```
array([[[255,   0,   0],
        [255,   0,   0],
        [255,   0,   0],
        ...,
        [255,   0,   0],
        [255,   0,   0],
        [255,   0,   0]],

       [[255,   0,   0],
        [255,   0,   0],
        [255,   0,   0],
        ...,
        [255,   0,   0],
        [255,   0,   0],
        [255,   0,   0]],

       [[255,   0,   0],
        [255,   0,   0],
        [255,   0,   0],
        ...,
        [255,   0,   0],
        [255,   0,   0],
        [255,   0,   0]],

       ...,

       [[255,   0,   0],
        [255,   0,   0],
        [255,   0,   0],
        ...,
        [255,   0,   0],
        [255,   0,   0],
        [255,   0,   0]],

       [[255,   0,   0],
        [255,   0,   0],
        [255,   0,   0],
        ...,
        [255,   0,   0],
        [255,   0,   0],
        [255,   0,   0]],
```

```
       [[255,   0,   0],
        [255,   0,   0],
        [255,   0,   0],
        ...,
        [255,   0,   0],
        [255,   0,   0],
        [255,   0,   0]]], dtype=uint8)
```

In [40]:
```
GokumangaToriyama_img
```

Out[40]:

In [41]:
```
arr1=np.asarray(GokumangaToriyama_img)
#creating second array
```

In [42]:
```
type(arr1)
```

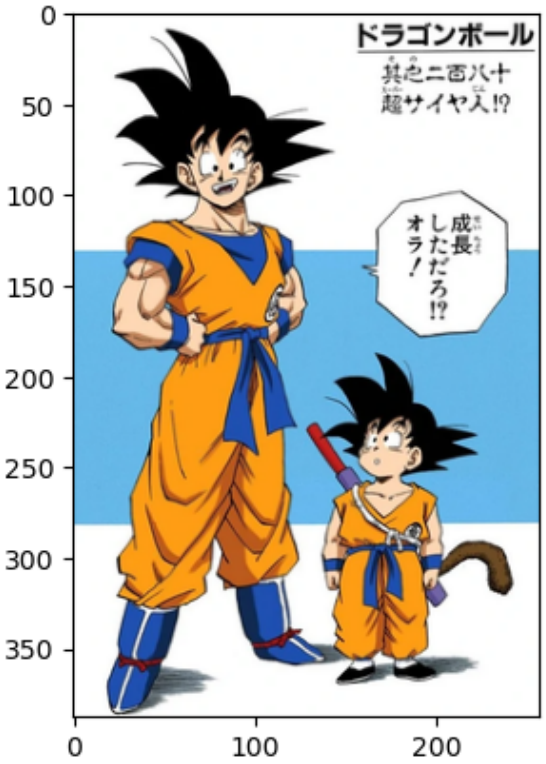
Out[42]:
```
numpy.ndarray
```

In [43]:
```
arr1.shape
```

Out[43]: (388, 257, 3)

In [44]:
```
plt.imshow(arr1)
```

Out[44]: <matplotlib.image.AxesImage at 0x286559ed490>

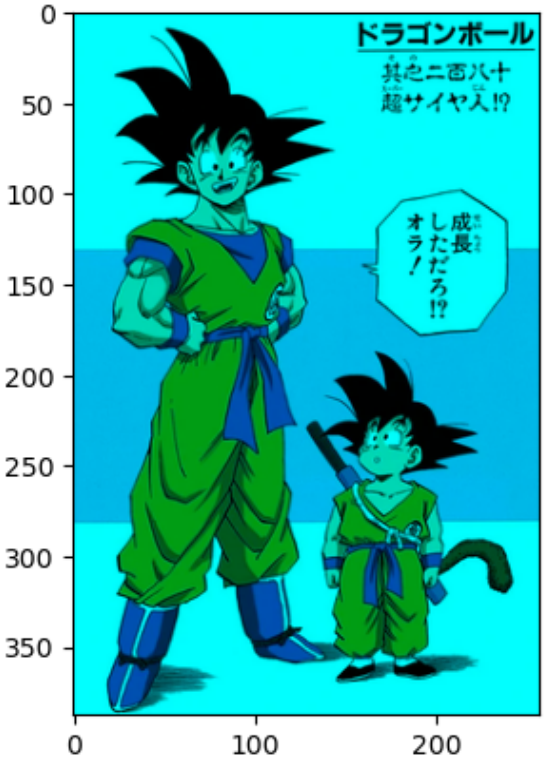


In [45]:
```
GokumangaToriyama_img1= arr1.copy()
```

In [46]:
```
GokumangaToriyama_img1[:,:,0] = 0
```

In [47]:
```
plt.imshow(GokumangaToriyama_img1)
```

Out[47]: <matplotlib.image.AxesImage at 0x28655c5a4e0>



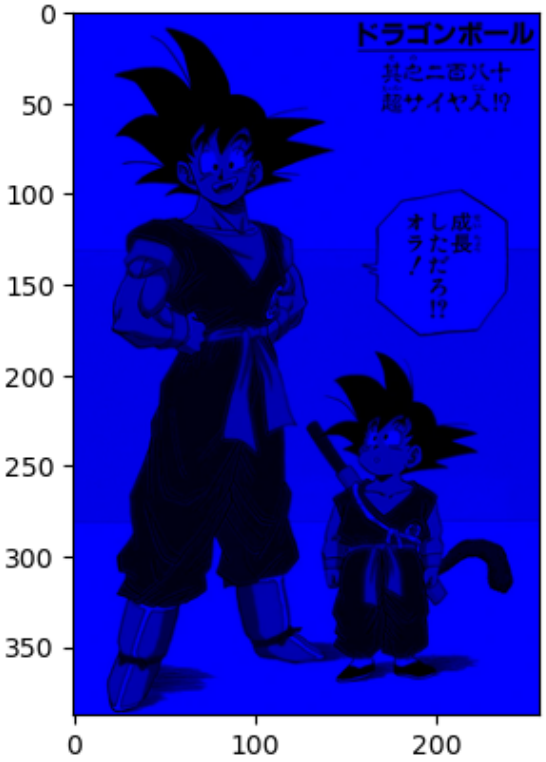
In [48]:
```
GokumangaToriyama_img1[:,:,1]
```

Out[48]:
```
array([[255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       ...,
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255],
       [255, 255, 255, ..., 255, 255, 255]], dtype=uint8)
```

In [49]:
```
GokumangaToriyama_img1[:,:,1] = 0
```

In [50]:
```
plt.imshow(GokumangaToriyama_img1)
```

Out[50]:
```
<matplotlib.image.AxesImage at 0x28655cda4e0>
```


ドラゴンボール
其之二百八十
超サイヤ人!?
成長したろ!?
オラ!
0
50
100
150
200
250
300
350
0
100
200

In [ ]: