```
    1: #include "NBody.hpp"
    2: //.000000002
    3: const float SCALE = (2.50e+11);//This number negates the e+10 in the x posit
ion.
    4:
    5: void Body::draw(sf::RenderTarget &target, sf::RenderStates states) const{
    6:   sf::Image image;
    7:   sf::Texture texture;
    8:   sf::Sprite sprite;
    9:
   10:   //std::cout << _position.x << _position.y << _filename << std::endl;
   11:
   12:   if(!image.loadFromFile(_filename)){
   13:       std::cout << "ERROR: could not load image from file" << std::endl;
   14:       return;
   15:     }
   16:
   17:     texture.loadFromFile(_filename);
   18:     sprite.setTexture(texture);
   19:
   20:     //need to multiply the x position by SCALE so the planets are not off th
e screen
   21:     sprite.setPosition((_position.x/SCALE) * 500 + target.getSize().x/2,(_po
sition.y/SCALE) * 400 + target.getSize().y/2);
   22: //x position / universe size * window size
   23:     target.draw(sprite);
   24:
   25: }
   26:
   27: std::istream& operator>>(std::istream& in, Body& body){
   28:
   29:   in >> body._position.x  >> body._position.y >> body._velocity.x >> body._v
elocity.y >> body._mass >> body._filename;
   30:
   31:   return in;
   32:
   33: }
   34:
   35: Body::Body(float xCoord, float yCoord, float xVelocity, float yVelocity, flo
at mass, std::string fileName){
   36:   //setting vars to specifications
   37:   _position.x = xCoord;
   38:   _position.y = yCoord;
   39:   _velocity.x = xVelocity;
   40:   _velocity.y = yVelocity;
   41:   _mass = mass;
   42:   _filename = fileName;
   43:
   44: }
   45: Body::Body(){
   46:
   47: }
   48:
   49:  sf::Vector2f Body::getPosition(){
   50:   return _position;
   51:  }
   52:
   53:  sf::Vector2f Body::getVel(){
   54:   return _velocity;
   55:  }
   56:
```

```
   57:  float Body::getMass(){
   58:   return _mass;
   59:  }
   60:
   61:  std::string Body::getFilename(){
   62:   return _filename;
   63:  }
   64:
   65:  Body::~Body(){
   66:
   67:  }
   68:
   69: //in main, before we make a new Body, we read in the file name that has the
proper characteristics, save them into multiple vars or strings, then feed them int
o the Body constructor
```