

```
// horse01 and 02 - sihouettes
// horse03 - 2017-11-25 - basic test
// horse03b - 2017-11-25 - add tail
// horse03c - 2017-11-25 - thicker legs + chin/tail support - nose to sphere
// horse04a - for publication
// Copyright Algot Runeman, 2017
    This program is free software: you can redistribute it and/or modify it under the terms of the GNU
    This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; with
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// The design is built from a silhouette exported from
// Inkscape. Silhouette code shown below not used but left in place
// to allow explanation of code development
// Exported silhouette
// Module names are of the form poly_<inkscape-path-id>(). As a result, // you can associate a polygon in this OpenSCAD program with the corresponding
// SVG element in the Inkscape document by looking for the XML element with // the attribute id="inkscape-path-id".
// fudge value is used to ensure that subtracted solids are a tad taller
// in the z dimension than the polygon being subtracted from. This helps
// keep the resulting .stl file manifold.
```

// Horse

fudge = 0.1;

```
module tail(){
//gt label: tail
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//tail
hull(){
translate([-28,0,43])
sphere(3);
translate([-30.5,0,42])
sphere(3);
translate([-33,-1,33])
sphere(2.5);
//gt label: tail
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//tail
translate([-33,-1,33])
sphere(2.5);
translate([-33,0,30])
sphere(2);
//gt label: tail
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//tail
hull(){
translate([-33,0,30])
sphere(2);
translate([-33,2,20])
sphere(1.2);
//gt label: tail
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//tail
hull(){
translate([-33,2,20])
sphere(1.1);
translate([-35,2,14])
sphere(1);
module poly_path10121(h)
scale([25.4/90, -25.4/90, 1]) union()
linear_extrude(height=h)
polygon([[23.253937,-64.335914],[46.507874,-78.288276],[63.044012,-87.589851],[85.264450,-95.85
module poly_path10123(h)
scale([25.4/90, -25.4/90, 1]) union()
linear extrude(height=h)
polygon([[22.737188,-65.369413],[7.234563,-56.584587],[-1.550262,-54.000826],[-20.153412,-55.034
```

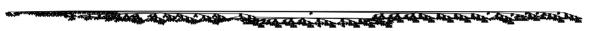
```
module horse(h)
poly_path10121(h);
poly path10123(h);
// polygons of silhouettes commented out
//rotate([90,0,0])
//translate([0,30,0])
//horse(2):
translate([0,0,-25]){
//gt label: neck
color([0.8928601514360016,0.3319798053011772,0.8212291230578318])//neck
hull(){
translate([8,0,35])
rotate([0,45,0])
cylinder(20,10,4);
translate([4,0,44])
sphere(3);
translate([25,0,55.5])
sphere(2);
//gt label: head
color([0.22199317108973948,0.8707323061773764,0.20671915533942642])//head
hull(){
translate([25,-2,51])
scale([1,.4,.7])
sphere(7);
translate([25,2,51])
scale([1,.4,.7])
sphere(7);
//gt label: head
color([0.22199317108973948,0.8707323061773764,0.20671915533942642])//head
hull(){
translate([27,-2,54])
scale([1,.4,.9])
sphere(5);
translate([27,2,54])
scale([1,.4,.9])
sphere(5);
translate([33,0,42])
sphere(3);
translate([34,-.6,42])
rotate([100,80,0])
//gt label: head
color([0.22199317108973948,0.8707323061773764,0.20671915533942642])//head
cylinder(2,2.5,2);
```

```
translate([33.5,2.5,42])
rotate([80,80,0])
//gt label: head
color([0.22199317108973948,0.8707323061773764,0.20671915533942642])//heac
cylinder(2,2,2.5);
translate([30,-3,53])
//gt label: eye
color([0.07630828937395717,0.7799187922401146,0.4384092314408935])//eye
sphere(2);
translate([30,3,53])
//gt label: eye
color([0.07630828937395717,0.7799187922401146,0.4384092314408935])//eye
sphere(2);
translate([27,-2,55])
rotate([30,0,0])
//gt label: ear
color([0.8734294027918162,0.968540662820932,0.86919454021392])//ear
cylinder(6,2,.5);
translate([27,2,55])
rotate([-30,20,0])
//gt label: ear
color([0.8734294027918162,0.968540662820932,0.86919454021392])//ear
cylinder(6,2,.5);
//gt label: body
color([0.9670298390136767,0.5472322491757223,0.9726843599648843])//body
hull(){
translate([8,0,35])
sphere(11.5);
translate([-20,0,38])
sphere(8);
//gt label: body
color([0.9670298390136767,0.5472322491757223,0.9726843599648843])//body
hull(){
translate([-23,-2,37])
sphere(10);
translate([-23,2,37])
sphere(10);
translate([-20,0,44])
sphere(5);
translate([0,0,40])
sphere(5);
//gt label: tail
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//tail
tail();
translate([0,-3,0])
rotate([-5,0,0])
//gt label: tail
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//tail
```

```
tail():
translate([0,-5,0])
rotate([-8,0,0])
//qt label: tail
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//tail
tail();
translate([13,-6,34])
//gt label: leg
color([0.8928601514360016,0.3319798053011772,0.8212291230578318])//neck
sphere(4.5);
translate([9.3,-6,15])
rotate([0,10,0])
//gt label: leg
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//leq
cylinder(19,2,4.5);
translate([9.6,-6,16])
//gt label: leg
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//leg
sphere(2.4);
translate([7,-6,4])
rotate([0,12,0])
//gt label: leg
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//leq
cylinder(12,2,2.3);
translate([7,-6,4])
//gt label: leg
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//foot
sphere(2.5);
//gt label: hoof and foot
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//foot
hull(){
translate([9,-6,0])
cylinder(2,3,2.5);
translate([9,-6,2])
rotate([0,-60,0])
cylinder(3,2,1.5);
translate([13,6,34])
//gt label: leg
color([0.9670298390136767,0.5472322491757223,0.9726843599648843])//body
sphere(4.5):
translate([9.3,6,15])
rotate([0,10,0])
//gt label: leg
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//leg
cylinder(19,2,4.5);
translate([9.6,6,16])
//gt label: leg
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//leg
sphere(2.4);
translate([7,6,4])
```

```
rotate([0,12,0])
//gt label: leg
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//leq
cylinder(12,2.2,2.3);
translate([7,6,4])
//gt label: leg
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//foot
sphere(2.5);
//gt label: hoof and foot
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//foot
hull(){
translate([10,6,0])
cylinder(2,3,2.5);
translate([10,6,2])
rotate([0,-60,0])
cylinder(3,2,1.5);
translate([-25,-6,15])
rotate([0,5,0])
scale([1.2,.8,1])
//gt label: leg
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//tail
cylinder(22,2,7);
translate([-25,-6,16])
//gt label: leg
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//leq
sphere(2.4);
translate([-23,-6,4])
rotate([0,-8,0])
//gt label: leg
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//leg
cylinder(12,2,2,5);
translate([-23,-6,4])
//gt label: leg
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//leq
sphere(2.5);
//gt label: hoof and foot
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//foot
hull(){
translate([-20,-6,0])
cylinder(2,3,2.5);
translate([-20,-6,2])
rotate([0,-60,0])
cylinder(3,2,1.5);
translate([-25,6,15])
rotate([0,5,0])
scale([1.2,.8,1])
//gt label: leg
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//leq
cylinder(22,2,7);
translate([-25,6,16])
//gt label: leg
```

```
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//leq
sphere(2.4);
translate([-23,6,4])
rotate([0,-8,0])
//gt label: leg
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//leq
cylinder(12,2,2.5);
translate([-23,6,4])
//gt label: leg
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//leg
sphere(2.5);
//gt label: hoof and foot
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//foot
hull(){
translate([-20,6,0])
cylinder(2,3,2.5);
translate([-20,6,2])
rotate([0,-60,0])
cylinder(3,2,1.5);
```





```
// animate X,X,32
// sprite
vpr = [45,0,180-$t*360];
//$vpt = [0,100,100];
vpt = [0,0,25];
vpd = 520;
s = 30;
h = s/2;
d = s^*2;
w = h*4.5;
dark = [1/5, 1/5, 1/5];
dither = [1/2, 1/2, 1/2];
light = [1, 1, 1];
*for (h = [-1:2:1])
translate([70*h,250,0])
cylinder(1,180,180);
rr = 0;
rl = 0;
rside = 6;
rf = 0;
rb = 0;
rfwd = 4;
jump = 0;
```

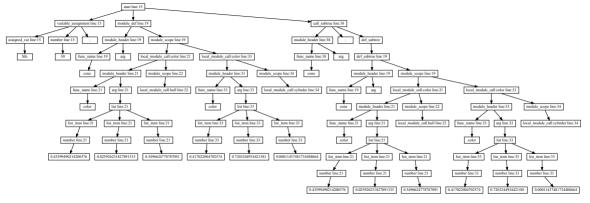
```
jumpfact = 8;
jumpshrink = 0.15;
shad = 0;
translate([-h,-d,3.5+abs(jump)*(1-jump)*jumpfact-30])
rotate([jump*jumpfact,0,0])
car();
module car() {
//gt label: wheel
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//wheel
translate([s*0.84, h, h])
wheel();
//gt label: wheel
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//wheel
translate([-s*0.84, h, h])
wheel();
if (rl == 1) {
translate([s*0.84, s*3.5, h])
translate([4,-7,0])
rotate([0,0,30])
wheel();
if (rr == 1) {
translate([s*0.84, s*3.5, h])
translate([4,9,0])
rotate([0,0,-35])
wheel();
if (!rr && !rl) {
translate([s*0.84, s*3.5, h])
wheel();
if (rl == 1) {
translate([-s*0.84, s*3.5, h])
translate([0,-8,0])
rotate([0,0,35])
wheel();
if (rr == 1) {
translate([-s*0.84, s*3.5, h])
translate([0,7,0])
rotate([0,0,-30])
wheel();
if (!rr && !rl) {
translate([-s*0.84, s*3.5, h])
wheel();
```

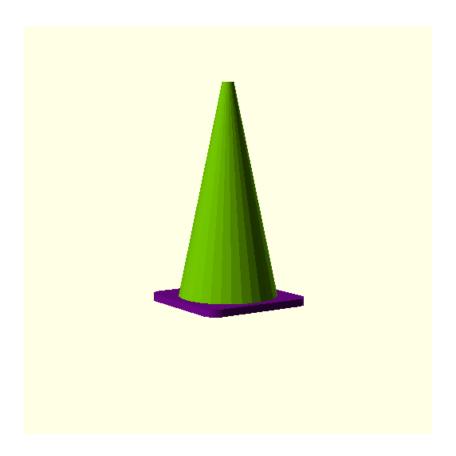
```
rotate([-rfwd*rf+rfwd*rb,-rside*rr+rside*rl,0])
translate([0,0,-rfwd*rb+rfwd*rf])
union() {
//gt label: main body
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//main body
difference() {
body();
difference() {
translate([-11,-40,41])
cube([52,200,21]);
translate([-h, h, d])
rotate([35,0,0])
translate([0, -37, -5])
cube([s*2,h*0.4,h/2]);
translate([-h, d*1.82265, d*1.15])
rotate([55,0,0])
translate([0, -37, -5])
cube([s*2,h/3,h/3]);
translate([46,105,40])
rotate([90,0,-90])
linear_extrude(0,0,62)
polygon(points=[[20,1],[106,1],[87,21],[48,21]]);
union() {
translate([s*0.75, h, h])
arch();
translate([-s*0.75, h, h])
arch();
translate([s*0.75, s*3.5, h])
arch();
translate([-s*0.75, s*3.5, h])
arch();
translate([42,36,62])
rotate([0,90,0])
//gt label: main body
color([0.9670298390136767,0.5472322491757223,0.9726843599648843])//wing mirror
```

```
cube([22,6,3]);
translate([-15,36,62])
rotate([0,90,0])
//gt label: main body
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//main body
cube([22,6,3]);
translate([43,44,36])
rotate([0,90,0])
//gt label: main body
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//main body
cube([5,8,3]);
translate([-16,44,36])
rotate([0,90,0])
//gt label: main body
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//main body
cube([5,8,3]);
translate([44,86-abs(shad)*2,43])
rotate([0,90,0])
//gt label: wing mirror
color([0.9670298390136767,0.5472322491757223,0.9726843599648843])//wing mirror
cube([7,4+abs(shad)*4,10]);
translate([-24,86-abs(shad)*2,43])
rotate([0,90,0])
//gt label: wing mirror
color([0.9670298390136767,0.5472322491757223,0.9726843599648843])//wing mirror
cube([7,4+abs(shad)*4,10]);
translate([46,85.9,42])
rotate([0,90,0])
//at label: wing mirror
color([0.9670298390136767,0.5472322491757223,0.9726843599648843])//wing mirror
cube([5,2,7]);
translate([-23,85.9,42])
rotate([0,90,0])
//gt label: wing mirror
color([0.9670298390136767,0.5472322491757223,0.9726843599648843])//wing mirror
cube([5,2,7]);
lights();
module lights() {
translate([-5,135,31])
```

```
rotate([90,0,0])
//gt label: headlights
color([0.22199317108973948,0.8707323061773764,0.20671915533942642])//headlights
cylinder(11,8,7);
translate([35,135,31])
rotate([90,0,0])
//gt label: headlights
color([0.22199317108973948,0.8707323061773764,0.20671915533942642])//headlights
cylinder(11,8,7);
translate([8,135,22])
rotate([90,0,0])
//gt label: headlights
color([0.22199317108973948,0.8707323061773764,0.20671915533942642])//headlights
cylinder(11,5,5);
translate([23,135,22])
rotate([90,0,0])
//gt label: headlights
color([0.22199317108973948,0.8707323061773764,0.20671915533942642])//headlights
cylinder(11,5,5);
translate([-16,-9,27])
rotate([90,0,0])
//gt label: headlights
color([0.22199317108973948,0.8707323061773764,0.20671915533942642])//headlights
cube([15,6,7]);
translate([31,-9,27])
rotate([90,0,0])
//gt label: headlights
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//main body
cube([15,6,7]);
translate([15,-14,33])
rotate([90,0,0])
//gt label: headlights
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//main body
cylinder(2,2.25,2.25);
module body() {
translate([-h*0.99, h*0.94, d])
rotate([45,0,0])
translate([0, -2, 0])
```

```
//qt label: main body
color([0.3599490214200376,0.025926231827891333,0.5496624778787091])//main body
cube([s*1.99,h/4,h*0.75]);
union() {
//gt label: main body
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//main body
difference() {
body_main();
translate([-s,s*1.5,s*2.5])
rotate([-35,0,0])
cube([s*3,s*4,d]);
translate([d,s*1.75,s*3.5])
rotate([-45,0,180])
cube([s*3,s*4,d]);
//gt label: main body
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//main body
difference() {
translate([-h, s*2.95, h])
cube([s*2,s*1.5,s*5/6]);
translate([-s,s*3.75,s*1.5])
rotate([-30,0,0])
cube([s*3,s,s]);
module body_main() {
translate([-h, -h, h])
//gt label: main body
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//main body
cube([s*2,s*5,s*1.65]);
module wheel() {
//gt label: wheel
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//wheel
difference() {
translate([s/3,0,0])
rotate([0,90,0])
cylinder(s/3,h*1.25,h*1.25);
translate([h/2,0,0])
rotate([0,90,0])
cylinder(h,s/3,s/3);
translate([h*0.75,0,0])
rotate([0,90,0])
```





// TRAFFIC CONE

```
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```

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```
// version04 - 2017-02-07 - taller and thinner top
```

// version03 - 2017-02-07 - with base hole to allow stacking - with wider base

// version02 - 2017-02-07 - square base but hole is missing in base for stackingS // version01 - 2017-02-06

\$fn=30; // for curve smoothing

```
module cone(){
//gt label: base
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//base
translate([6,6,0])
cylinder(1,2,2);
translate([6,-6,0])
cylinder(1,2,2);
translate([-6,6,0])
cylinder(1,2,2);
translate([-6,-6,0])
```

```
cylinder(1,2,2);
} // end hull
//gt label: top
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//top
cylinder(30,7,.8);
} // end module
```

cone();

The state of the s



```
// Gumball Watterson
// At the request of https://scifi.fyi/@paeneultima
// version02 2018-09-20 hand rotation to hip
// version03 2018-09-20 add a tail/improve pupil of eyes
```

```
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```

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- // This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; with
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```
$fn=30;
module ear(){
//gt label: ear
color([0.9670298390136767,0.5472322491757223,0.9726843599648843])//ear
hull(){
translate([2,0,0])
    sphere(1);
translate([-2,0,0])
    sphere(1);
translate([0,2,0])
    sphere(1);
}
module eye(){
//gt label: eye
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//eye
difference(){
```

```
hull(){
sphere(1.7);
translate([0,1,0])
sphere(2);
translate([0,2,0])
sphere(1.7);
translate([0,1,1])
sphere(1.5);
module foot() {
//gt label: foot
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//foot
difference(){
scale([1,2,1])
sphere(2);
translate([-2,-10,-2])
cube([5,20,2]);
translate([0,-3,.80])
//qt label: foot
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//foot
sphere(.8);
translate([-1,-3,.75])
//qt label: foot
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//foot
sphere(.75);
translate([1,-3,.75])
//gt label: foot
color([0.417022004702574,0.7203244934421581,0.00011437481734488664])//foot
sphere(.75);
module hand(){
scale([2,2,1])
//gt label: arm
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
sphere(.8);
translate([0,-2,0])
scale([1,3,1])
//gt label: arm
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
sphere(.6);
translate([-1,-2,0])
rotate([0,0,-20])
scale([1,3,1])
//gt label: arm
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
sphere(.6);
translate([1.2,-1.5,0])
rotate([0,0,20])
scale([1,3,1])
//gt label: arm
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
```

```
sphere(.6);
translate([-2,-.5,0])
rotate([0,0,-60])
scale([1,3,1])
//gt label: arm
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
sphere(.6);
translate([-3,-1.5,0])
//gt label: arm
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
sphere(.6);
module tail(){
//qt label: tail
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
hull(){
translate([0,.5,13])
sphere(1.2);
translate([0,4,18])
sphere(1.7);
translate([0,0,-20]){
translate([-3,0,0])
foot();
translate([3,0,0])
foot();
translate([-3,1,1])
//gt label: leg
color([0.22199317108973948,0.8707323061773764,0.20671915533942642])//leq
cylinder(12,2,1.5);
translate([3,1,1])
//gt label: leg
color([0.22199317108973948,0.8707323061773764,0.20671915533942642])//leg
cylinder(12,2,1.5);
translate([0,1,13])
scale([1.8,1.5,1])
//gt label: body
color([0.8734294027918162,0.968540662820932,0.86919454021392])//body
sphere(3);
translate([0,4,0])
tail();
translate([0,1,15])
rotate([4,0,0])
//gt label: body
```

```
color([0.8734294027918162,0.968540662820932,0.86919454021392])//body
cylinder(12,3,1.5);
translate([0,0,28])
scale([1,.5,1])
//gt label: body
color([0.8734294027918162,0.968540662820932,0.86919454021392])//body
sphere(3);
translate([-5,0,15])
rotate([90,0,90])
hand();
translate([-5,0,15])
rotate([0, -30, 0])
//gt label: arm
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
cylinder(10,1,1);
translate([-10.5,0,24.2])
//at label: arm
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
sphere(1);
translate([-10,0,24])
rotate([0,65,0])
//gt label: arm
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
cylinder(10,1,1.5);
// left arm
//gt label: arm
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
translate([5,0,15])
rotate([90,0,90])
hand();
//gt label: arm
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
translate([5,0,15])
rotate([0,30,0])
cylinder(10,1,1);
//gt label: arm
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
translate([10.5,0,24.2])
sphere(1);
//gt label: arm
color([0.43599490214200376,0.025926231827891333,0.5496624778787091])//arm
translate([10,0,24])
rotate([0,-65,0])
cylinder(10,1,1.5);
//gt label: head
color([0.8928601514360016,0.3319798053011772,0.8212291230578318])//bottom
difference(){
hull(){
translate([0,0,35])
scale([1,.5,1])
sphere(7);
translate([-4,0,32])
scale([1,.75,1])
```

```
sphere(3);
translate([-2.8,-2,36])
sphere(1.5);
translate([2.8,-2,36])
sphere(1.5);
translate([-3,-2,35])
rotate([90,0,0])
//gt label: eye
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//eye
eye();
translate([3,-2,35])
rotate([90,0,0])
//gt label: eye
color([0.5507979025745755,0.7081478226181048,0.2909047389129443])//eye
eye();
//gt label: ear
color([0.9670298390136767,0.5472322491757223,0.9726843599648843])//ear
translate([5,0,40])
rotate([-90,100,0])
ear();
//gt label: ear
color([0.9670298390136767,0.5472322491757223,0.9726843599648843])//ear
translate([-5,0,40])
rotate([-90,-100,0])
ear();
```