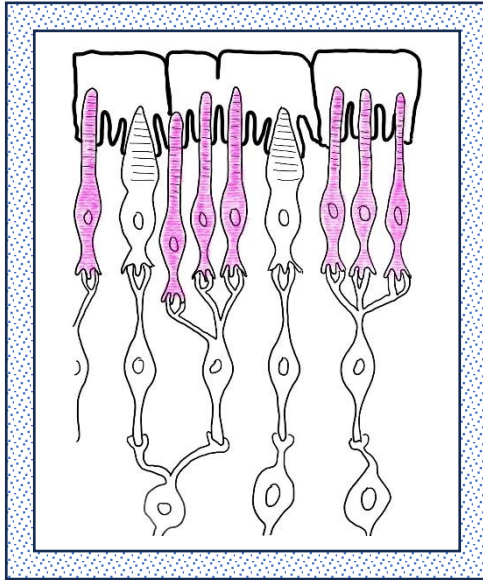


Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA



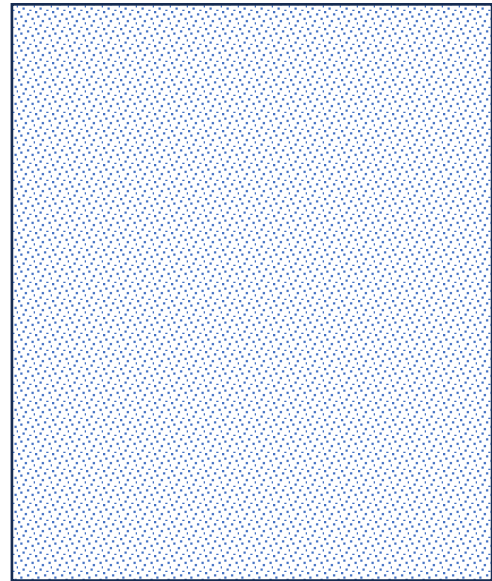
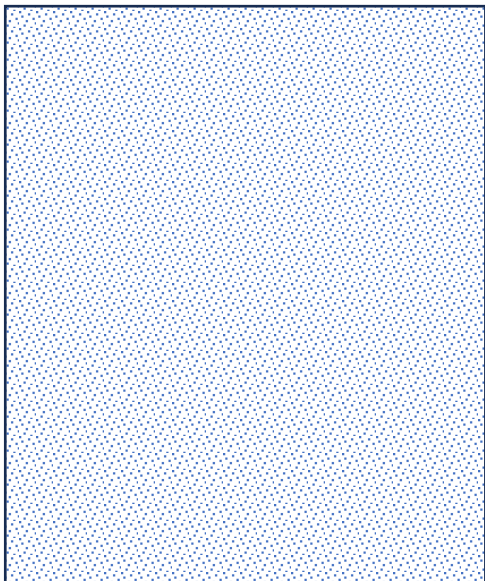
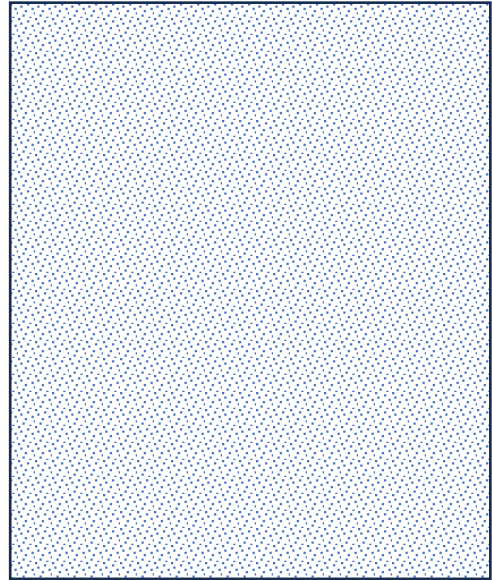
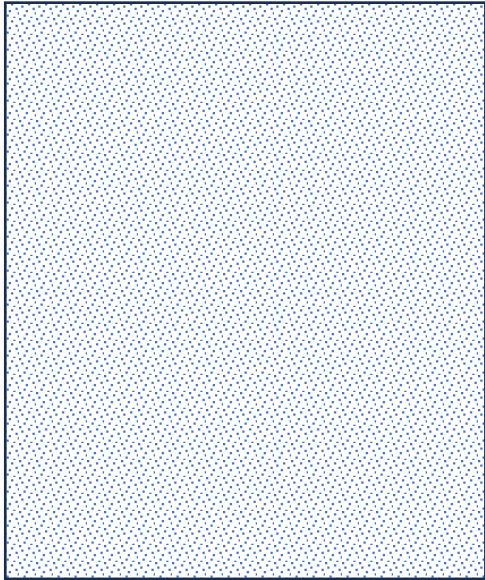
Rod
photoreceptor

Function best in
dim light
(scotopic system)

There are about
100 million of
these input cells
in the human
retina

Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA



Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA

More densely
packed in
peripheral retina

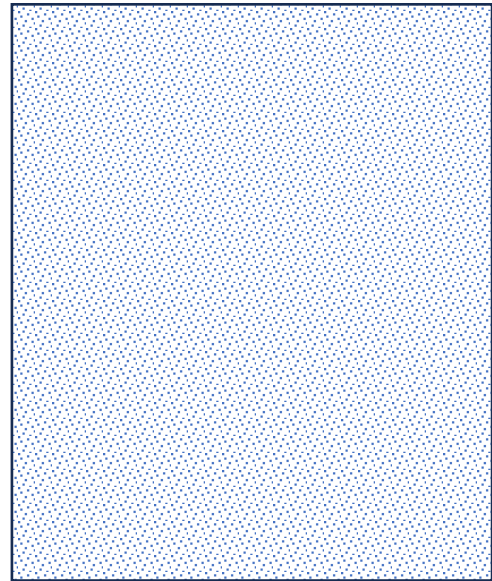
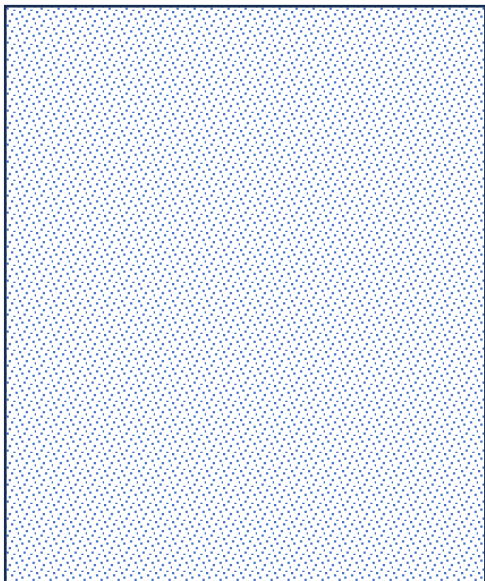
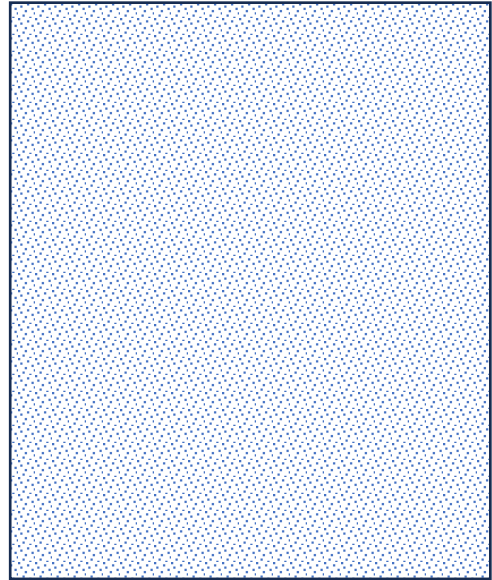
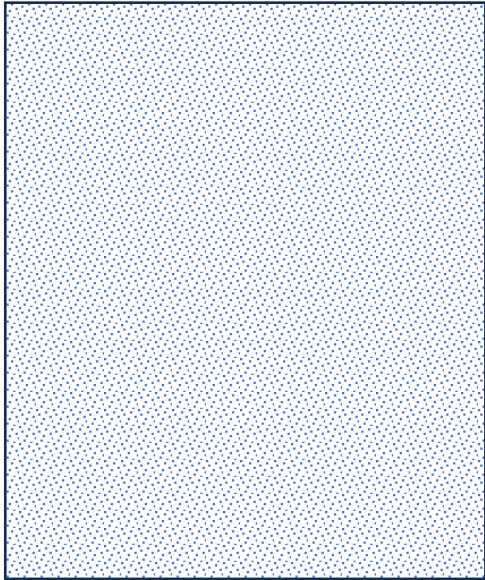
Most sensitive
input cell in the
retina

These input
cells are
primarily black
and white
brightness
receptors

This input cell
has only one
type

Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA



Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA

These input cells
have a lot of
convergence
onto ganglion
cells (via bipolar
cells)

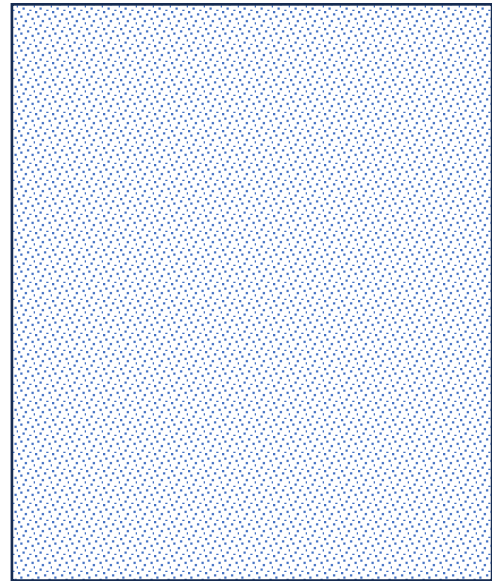
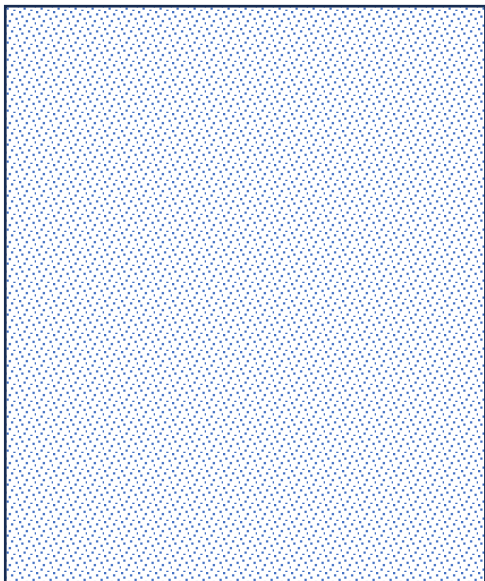
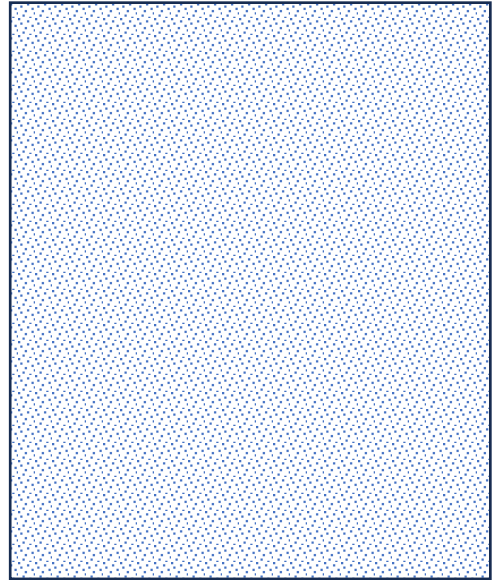
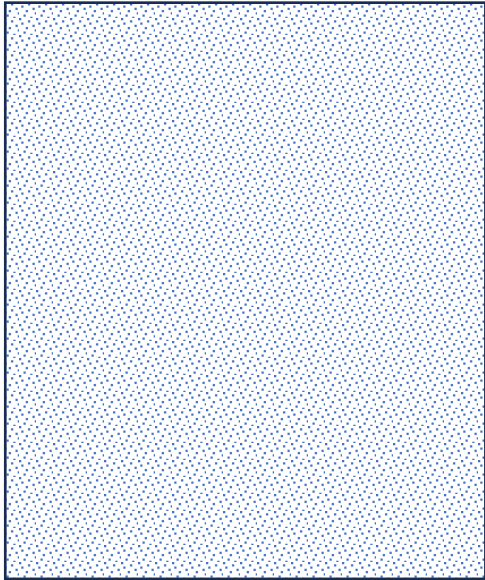
These input cells
permit
peripheral vision

These input cells
are very
sensitive to light
and require little
stimulation to
respond

The temporal
response of
these input cells
is slow

Retinal neurons card game!

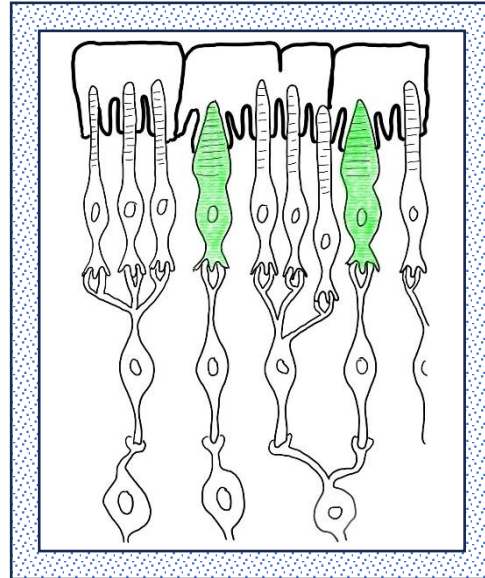
Kellyanne Findlay, PhD, SFHEA



Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA

Rhodopsin
converts light
into an electrical
signal in this
input cell

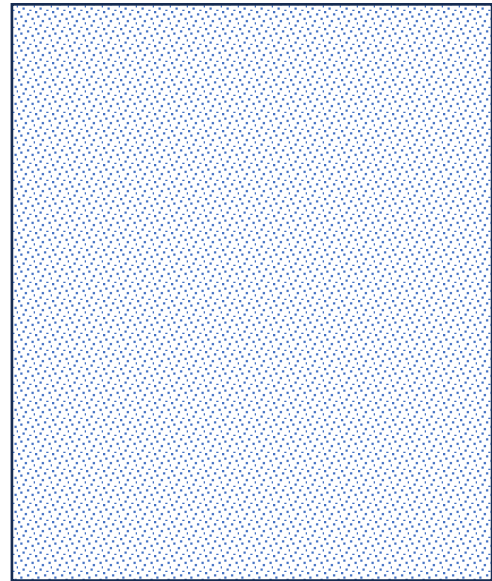
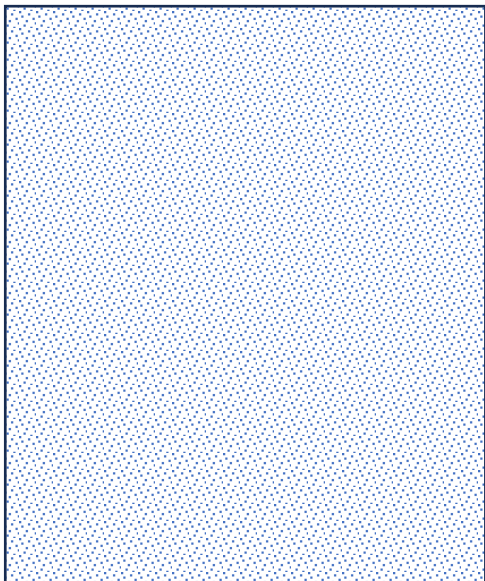
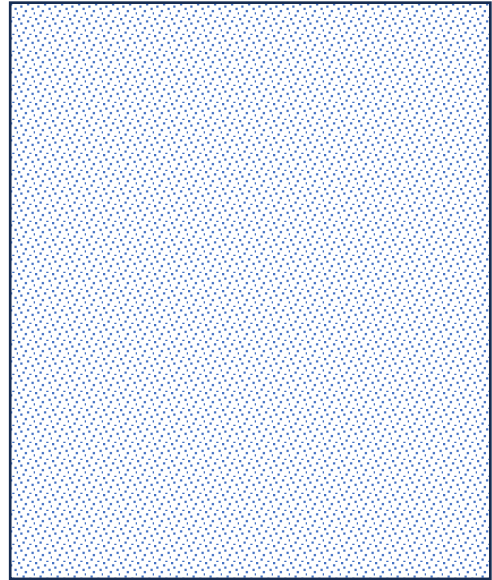
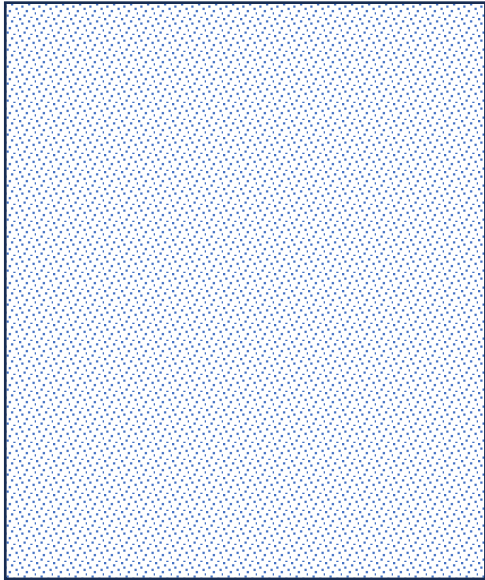


Cone
photoreceptor

Function best in
bright
illumination
(photopic
system)

Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA



Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA

There are about
4 million of
these input cells
in the human
retina

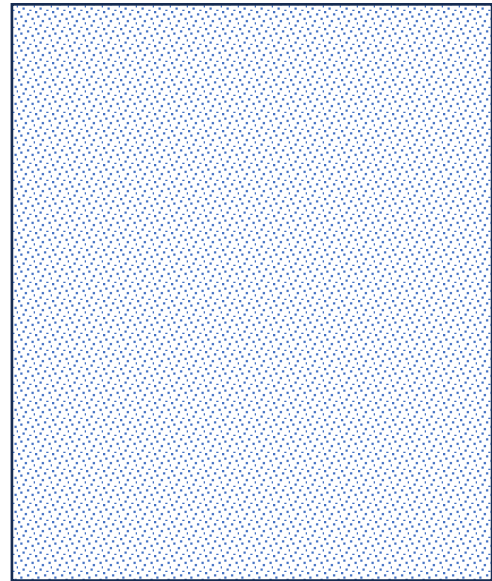
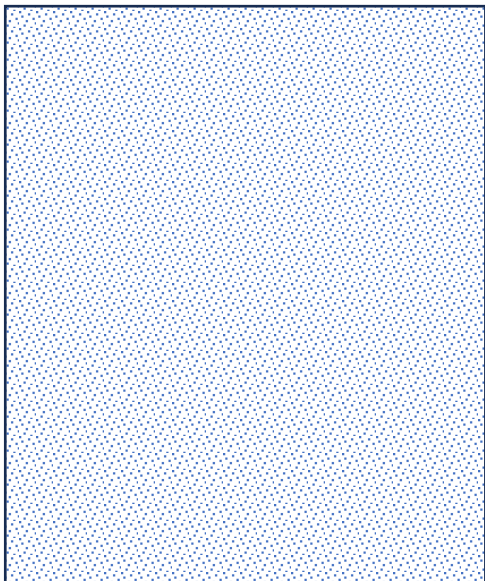
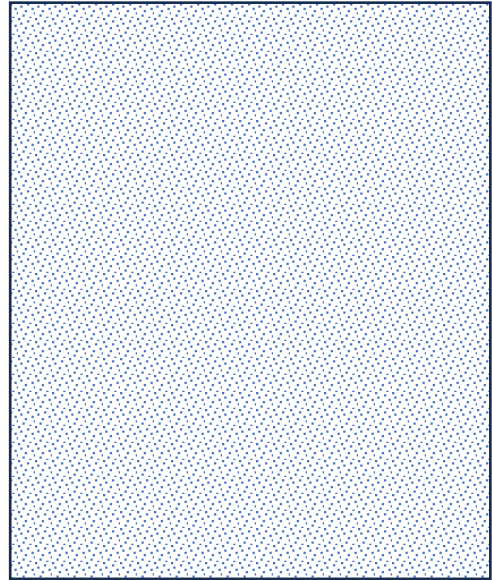
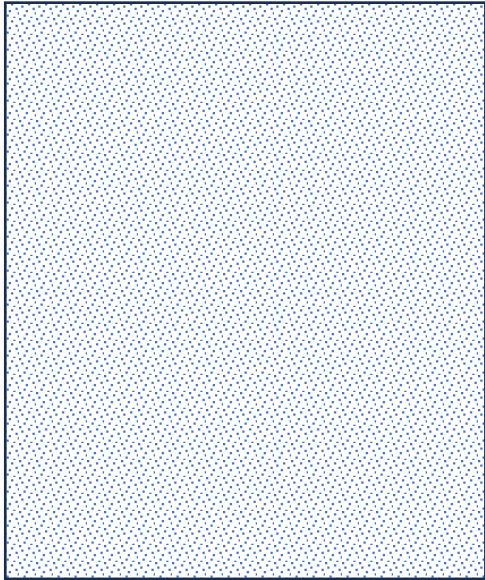
More densely
packed in central
retina

Least sensitive
input cell in the
retina

These input cells
are colour
receptors

Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA



Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA

This input cell
has three types,
each with
different
wavelength
preference

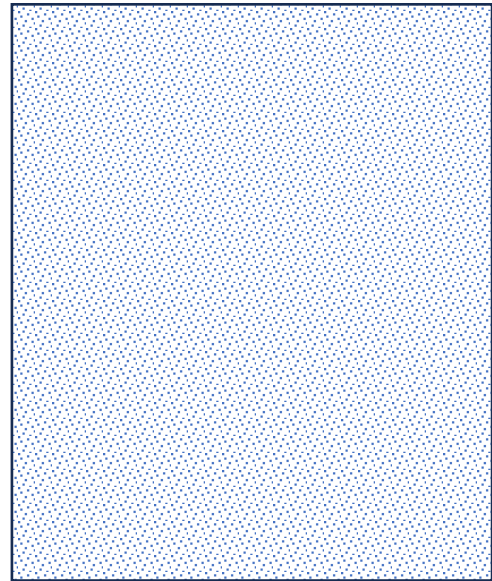
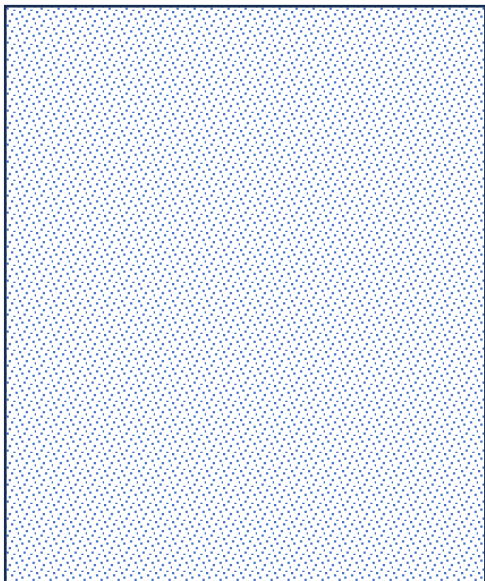
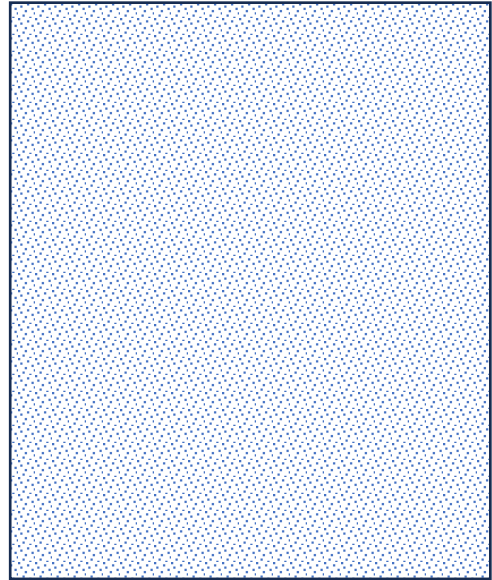
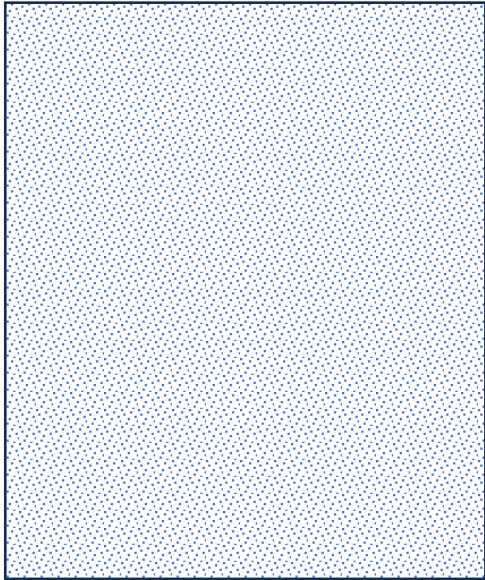
These input cells
have much less
convergence
onto ganglion
cells (via bipolar
cells)

These input
cells give rise to
detailed visual
acuity

These input cells
require more
stimulation to
respond (i.e. are
less sensitive)

Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA



Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA

These input cells
have a long
outer segment

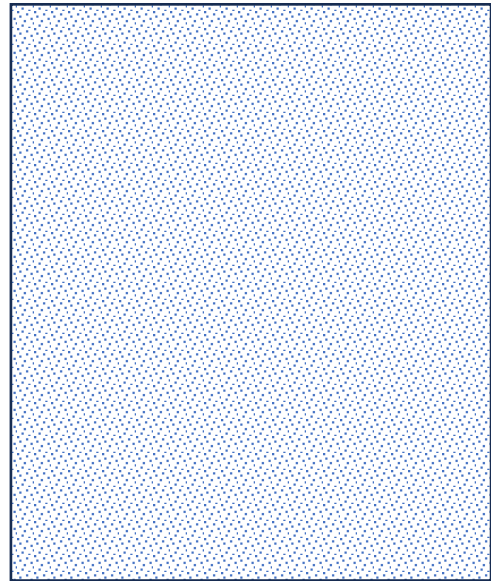
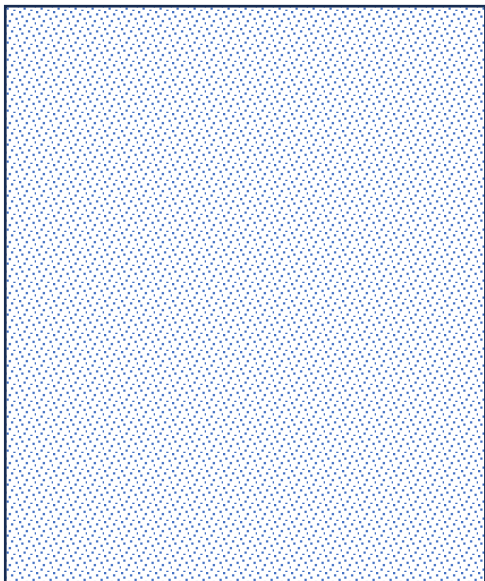
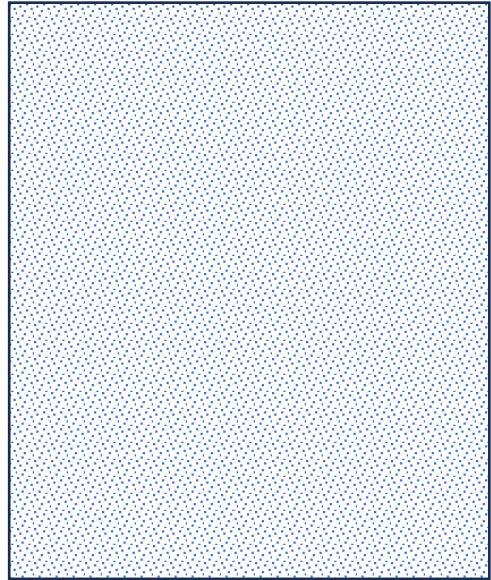
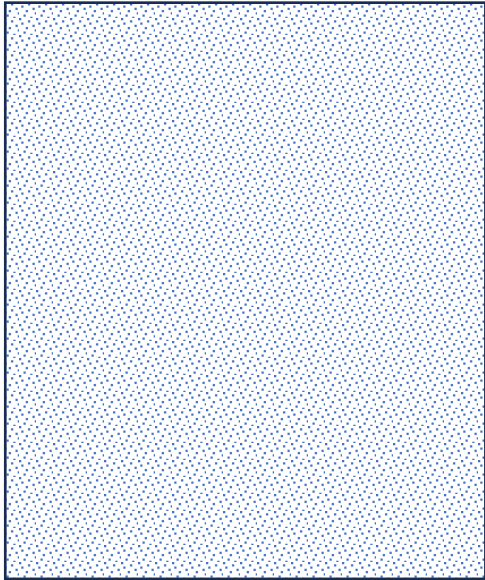
These input cells
have a shorter
outer segment
but with more
densely packed
discs

The 2nd most
abundant type of
cell in the retina
with about 10
million of these
cells in the human
retina

The 3rd most
abundant type of
cell in the retina
with about 1.5
million of these
cells in the human
retina

Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA

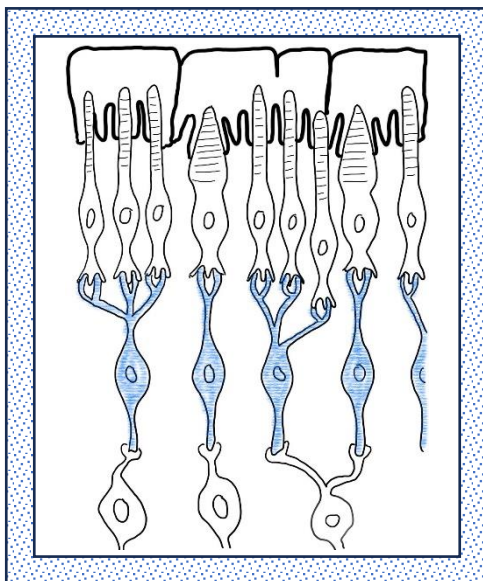


Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA

The temporal response of these input cells is relatively fast

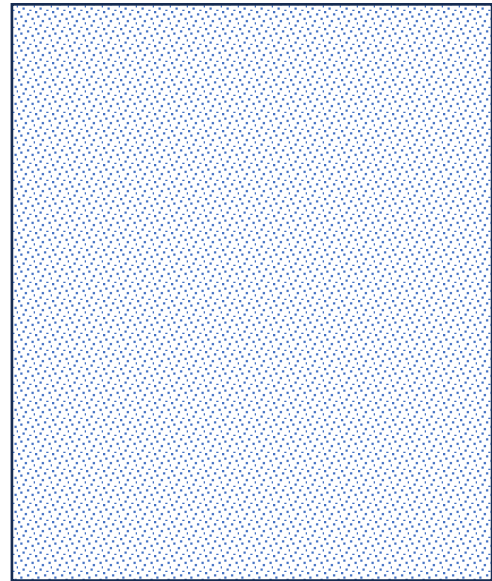
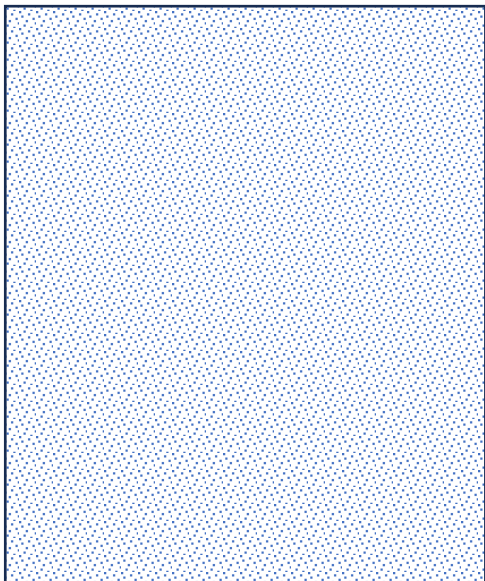
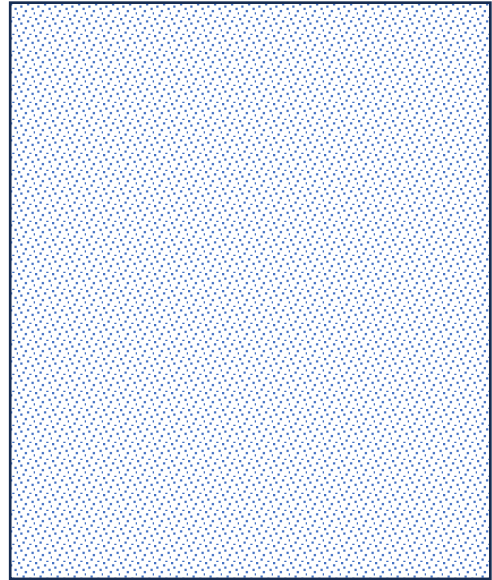
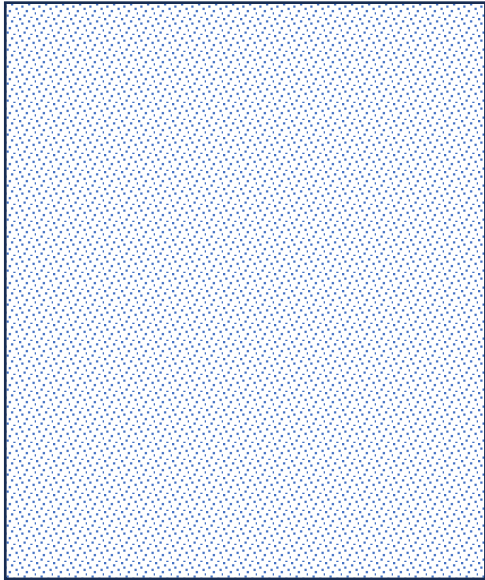
Opsin proteins
photopsin/iodopsin convert light into an electrical signal in this input cell



Bipolar cell

Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA



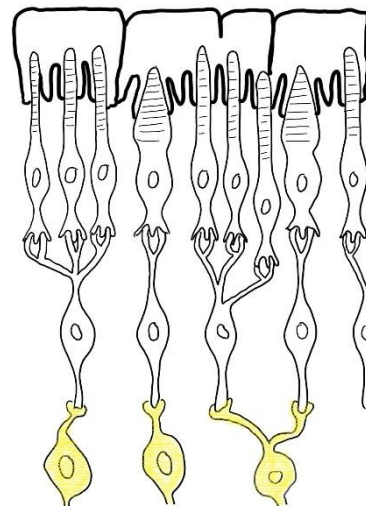
Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA

Transmit signals
from
photoreceptors
to retinal
ganglion cells

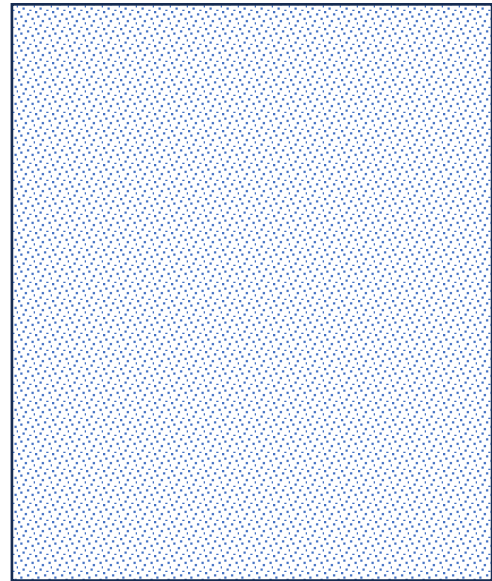
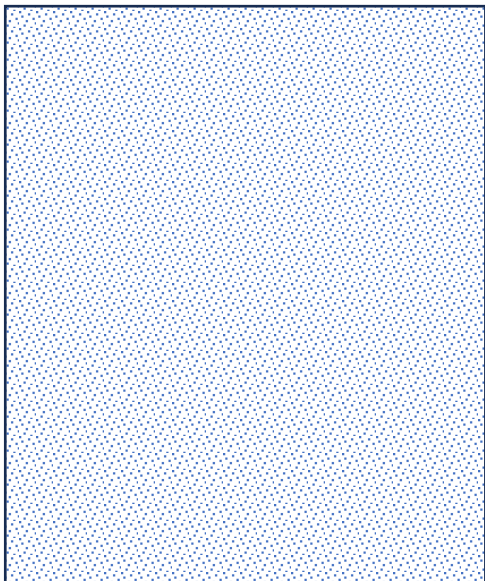
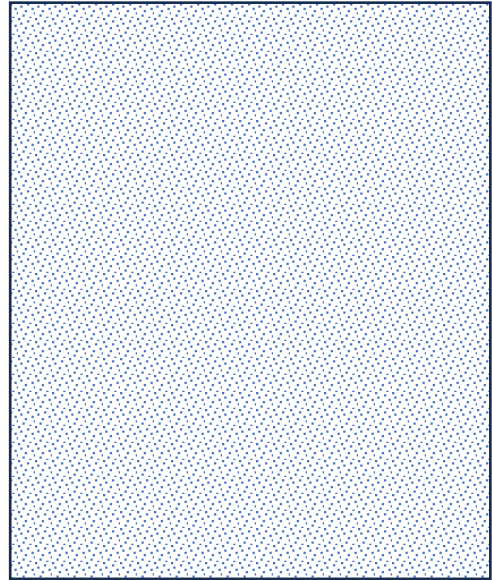
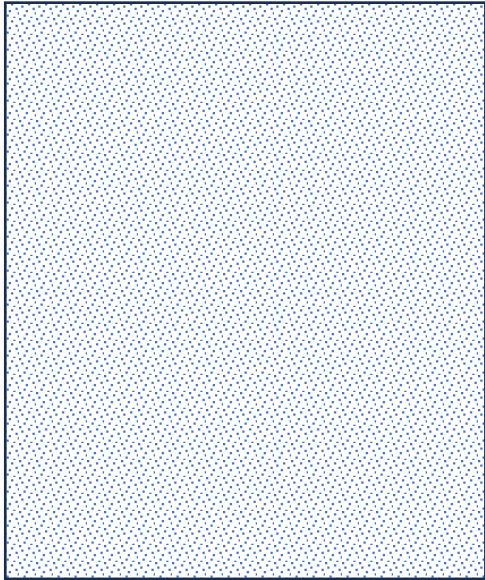
Interneurons in
the retina

These cells have
a central body
from which two
sets of
processes arise



Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA

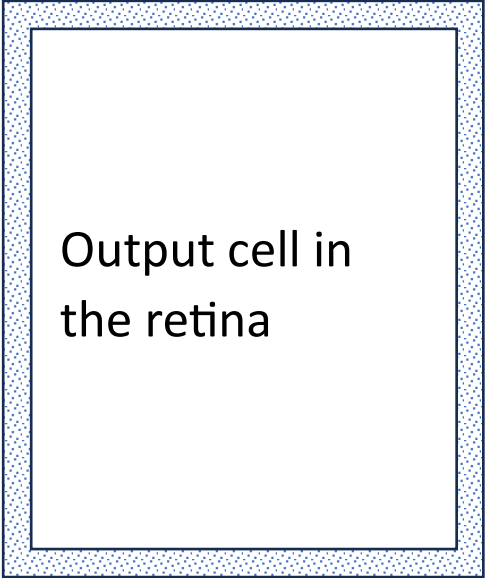


Retinal neurons card game!

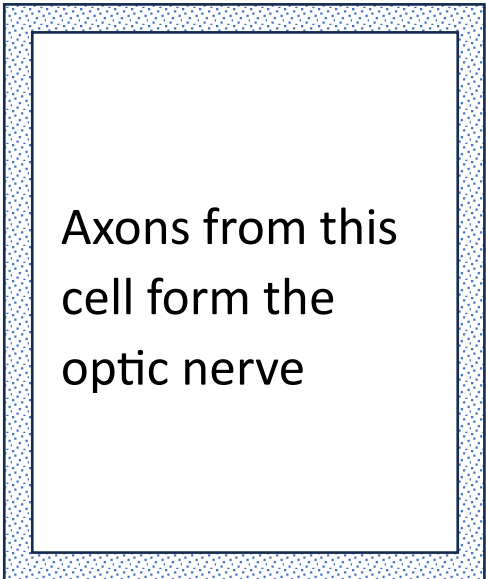
Kellyanne Findlay, PhD, SFHEA



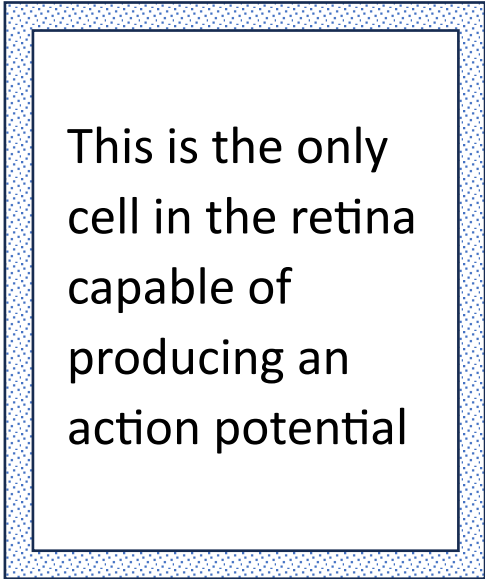
Ganglion cell



Output cell in
the retina



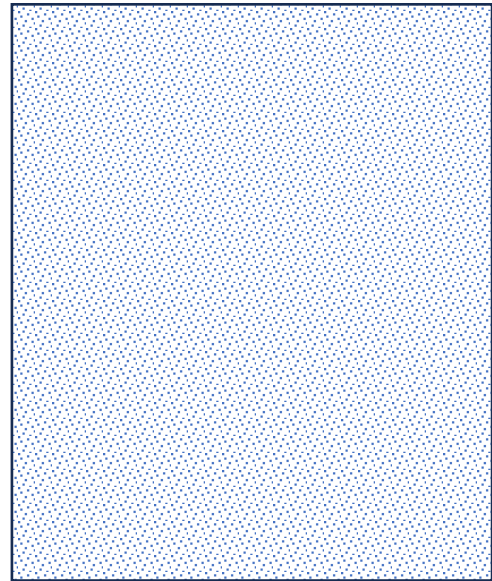
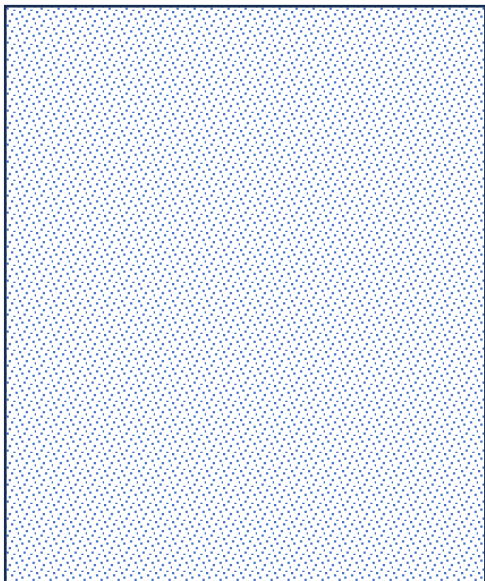
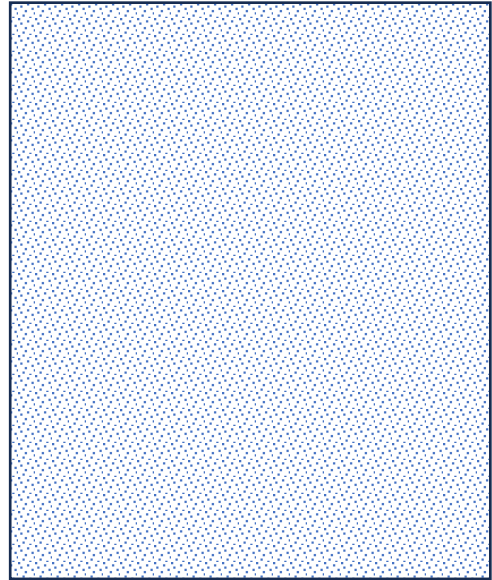
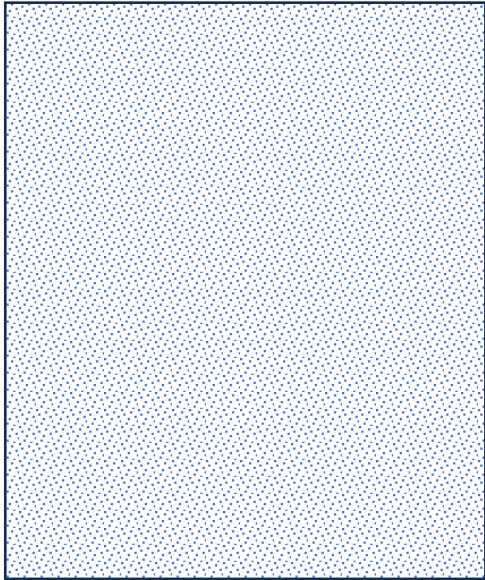
Axons from this
cell form the
optic nerve



This is the only
cell in the retina
capable of
producing an
action potential

Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA



Retinal neurons card game!

Kellyanne Findlay, PhD, SFHEA

This cell
transmits
signals from the
retina to the
brain

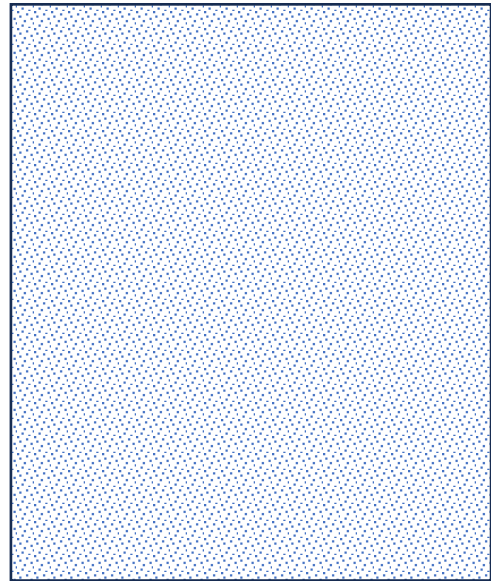
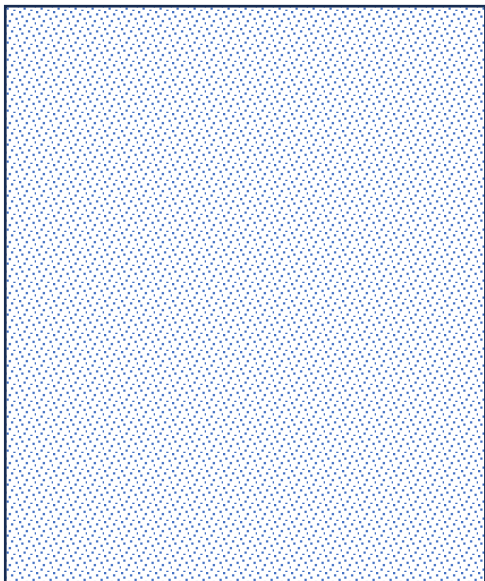
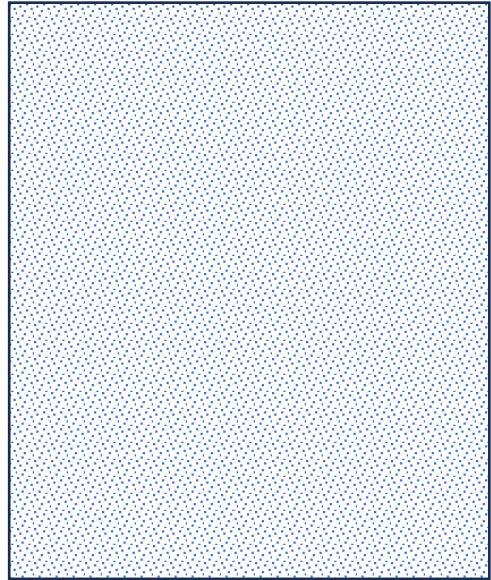
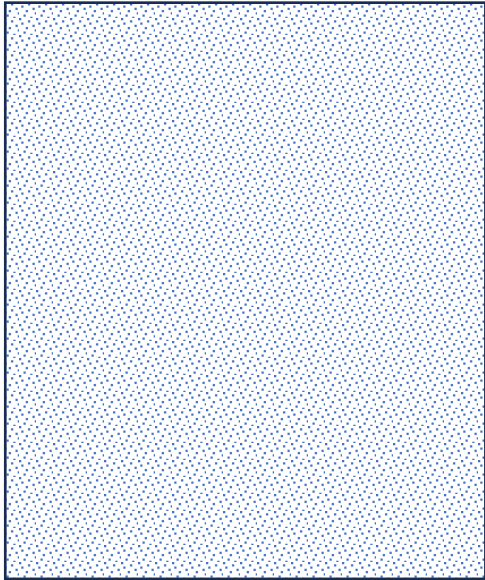
This cell is
generally
classified into
two main types:
magnocellular
and
parvocellular

This cell plays a
key role in
encoding visual
information

This cell
compares the
amount of light
in different
parts of its
receptive field

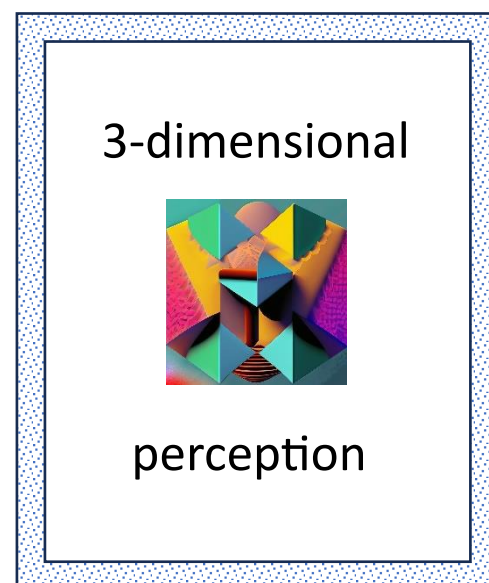
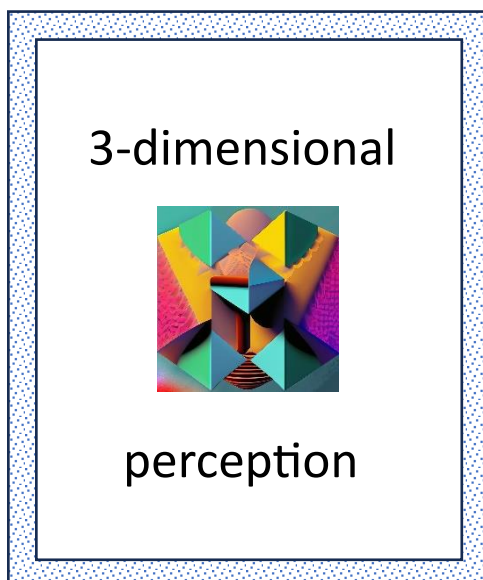
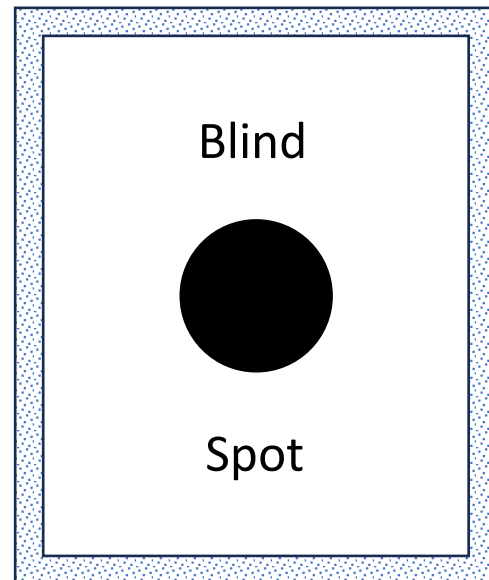
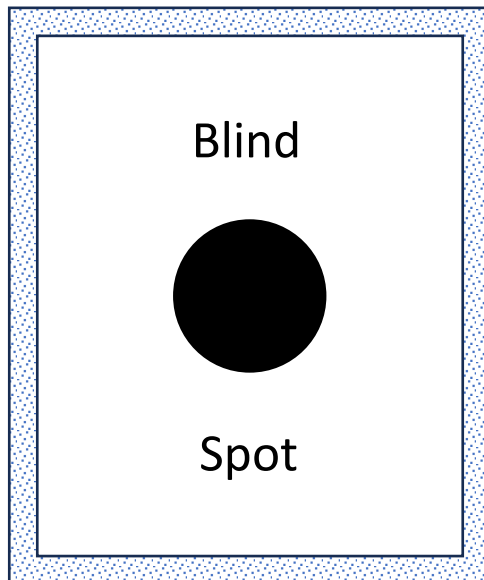
Retinal neurons card game!

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