

S214

Illusions

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■ Purpose of Exhibition

There are some interactive exhibits here to show what illusions are. "Optical Illusions" are just still images, but strangely, they appear to move. "Illusion of Smooth Hands" is exhibit where our hands seem to be very smooth when we touch it. "Tilted Room" is a special room in which we can hardly walk. "3-D Visual Illusions" are magical solid objects that have unbelievable things happen to them. Now let's try them and see the fun of illusions.



■ Additional Knowledge

[Optical Illusions] Three pieces of optical illusions by Akiyoshi Kitaoka are displayed. An optical illusion means trick of the eye. "Expanding pansies" and "Moving snakes with a cloud of dust" are still images but they appear to expand or move. The last one is "Asagao". There are many yellow dots in this picture. This is an illusion where the dots appear to vanish. The single dot that we are just looking at appears, but the rest of them in adjacent areas seem to disappear.

[Illusion of Smooth Hand]

Try holding the net here with both hands together, and just try stroking it. We can feel as if we have got smooth hands and fingers like touching velvet. This feeling cannot be explained all that well.

And unfortunately, the reason for this phenomenon is unclear even now.

[Tilted Room]

"Tilted Room" is a room that has tilted floors, walls and ceilings. In this room, a ball rolls over slope rails. Let's try walk slowly in this "Tilted Room". Can you do it well? You must be feeling wobbly and it must be difficult to walk in here. In fact, it may even be difficult to keep standing. It is dangerous when you appear to fall down. Please sit down or hold on something on the wall. And close your eyes until you feel better, and then you can slowly stand up. But be careful, when you open your eyes you may start to feel wobbly again.

By the way, we have an organ of balance in our inner ear. It can receive signals of balance or movement of human body. Visual signals are also important for us. Our eyes send them to the brain to maintain orientation or personal balance. You might have experienced that 'wobbly feeling' when you stand with one leg closing your eyes. We can keep our posture by seeing our surroundings. This sense of balance supports us to stand firmly or walk straight without falling down.

The walls of "Tilted Room" are perpendicular to the tilted floor. It means that they are inclined to the ground. When we close our eyes, we try to keep standing straight to the ground and stand even on tilted floor, because only sound signals are sent to our brains. But after we open our eyes, we receive the wrong visual signals about the walls or ceilings. We should believe

that just our body is leaning, not the walls. Thus, our brain receives two different kinds of information and can not make a good judgment. It is also confused and fooled by wrong visual information.

[3-D Visual Illusions]

Firstly, try looking inside through the hole. There are slopes stretching from the central platform four-ways. When we put balls on the edge of each slope, amazingly, the balls roll over the slopes to the central platform as if they are sucked in there.

The three types of "3-D Visual Illusions" by Koukichi Sugihara are displayed. They are all incredible three-dimensional works of impossible motions. Please try to discover how the tricks work first, and after that, push the switches that give you the truth about the motions.

Cooperation: Akiyoshi Kitaoka (Professor, Ritsumeikan University) Koukichi Sugihara (Specially Appointed Professor, Meiji University) Reference: <http://www.ritsumei.ac.jp/~akitoka/a/index-j.html> <http://home.mims.meiji.ac.jp/~sugihara/hobby/hobby.html> Article by Ishida Keiko, curator