■ **ListPlot3D**

ListPlot3D[array] generates a three-dimensional plot of a surface representing an array of height values.

ListPlot3D[array, shades] generates a plot with each element of the surface shaded according to the specification in shades.

ListPlot3D returns a `SurfaceGraphics` object, which can be displayed using `Show`. The following options can be given:

- **AmbientLight** GrayLevel[0.] ambient illumination level
- **AspectRatio** 1 ratio of height to width
- **BoxRatios** {1, 1, 0.4} bounding 3D box ratios
- **Boxed** True whether to draw the bounding box
- **ClipFill** Automatic how to draw clipped parts of the surface
- **DisplayFunction** $DisplayFunction function for generating output
- **Framed** False whether to draw a frame
- **LightSources** (see below) positions and colors of light sources
- **Lighting** False whether to use simulated illumination
- **Mesh** True whether to draw a mesh on the surface
- **PlotMatrix** Automatic perspective transformation matrix
- **PlotColor** True whether to plot in color
- **PlotLabel** None a label for the plot
- **PlotRange** Automatic range of values to include
- **Shading** True whether to shade polygons
- **ViewPoint** {1.3, -2.4, 2.} viewing position

array should be a rectangular array of real numbers, representing z values. There will be holes in the surface corresponding to any array elements that are not real numbers. If array has dimensions $m \times n$, then shades must have dimensions $(m-1) \times (n-1)$. The elements of shades must be either GrayLevel[i] or RGBColor[r, g, b]. The default light sources used are the same as for Graphics3D. See page 137. See also: Plot3D.